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On the Desirability of Obtaining a National Theatre not wholly Controlled by Prevailing Popular Taste.

ABOUT seven years ago, the writer, when presiding at a public meeting whereat the lamented Dr. Doran had delivered an eloquent address, "For and Against Shakspeare," urged the want of a theatre not wholly controlled by the temporary predominant taste of the public, and commented on the unsatisfactory condition of things with regard to the education of actors. The establishment was called for of a theatre, subsidised by Government or by a public subscription, wherein plays of the highest character should be performed, and which should serve as a school for actors. These words evidently gave expression to the thoughts of many. The Nestor of English dramatists, Mr. J. R. Planché, Somerset Herald, taking them for a text, published a letter wherein he, too, called for "the *assured* existence of a theatre in which the masterpieces of our unrivalled dramatic authors should be constantly and worthily represented, where,—

'Thoughts that breathe, and words that burn,'

should be uttered by actors who can feel and express them to an audience 'fit,' however 'few,' without the fear that their salaries will not be forthcoming on the following Saturday, and that the manager, disheartened by the appearance of empty benches, will change the bill, discharge a company he has *jobbed* at a week's notice, and endeavour to outrival his competitors by pandering to the predominant taste of the public," and he said, with reason, "Is it not a just cause of complaint?—is it not, in fact, a national disgrace that there should not be one playhouse in this vast metropolis where those who can still enjoy the most sublime poetry, the most brilliant wit, and 'the pure well of *English*, undefiled,' may resort for an evening's rational and intellectual amusement afforded by a creditable representation of the masterpieces of our unrivalled British dramatists?" Persons of high rank, and men of large fortune, can be found to support establishments, the performances and performers at which it is not for me to criticise, and yet not one English nobleman, not one English merchant prince, steps forward to lend a hand to raise the drama from the dust and oblivion into which it has gradually fallen, until it is actually unknown to the rising generation, who become naturally inoculated with the predominant taste of the public.

Mr. Tom Taylor followed with a series of letters backing up the demand. First showing the changes that had taken place as to the stage in recent times. "The country theatres a few years ago," said he, "flourished as feeders of the London ones; and a York, Bath, or Norwich reputation, well assured, was the certain passport to a London position, reached often by way of Edinburgh or Dublin, but always the goal of a steadily followed and successful career. Once established at Drury Lane, Covent Garden, or the Haymarket, the actor was a personage, after his degree." "The actor and his work had, besides, their place in the world of art. Productions of new pieces were events in that world. Great critics were not above sitting in judgment on plays and players. Great painters were proud to paint, great statesmen to know them. The House of Commons paused once in debate to pay a formal compliment, by the eloquent lips of Burke, to Garrick, accidentally present in the Speaker's Gallery. We have only to read the critiques of the German Lichtenburg (written about 1775) on Garrick, Weston, Smith, and other actors of that time, to feel how immeasurably more intellectual an art acting then was, and in how incalculably more respectful and thoughtful a spirit it was viewed and judged then than seems even conceivable nowadays."

Another writer said,—What we want is a house in which plays of the highest class shall from time to time be presented, with the certainty that while public taste is being educated, the actor and the manager are not being ruined. "Such can only be obtained on the condition that there shall be a sum of money annually devoted to the support of the theatre whilst the experiment is attempted. Government undoubtedly ought to do this. Political economists of the modern English stamp would of course cry out 'waste' were such a scheme broached. But real thinkers know that the ameliorative influence of education in art gives good interest for money invested in its furtherance. Education is at once the safest and pleasantest way of reducing expenditure. No less sure, however, than we are that any Government which gave, under wise supervision, a moderate allowance to a theatre would act wisely, are we that no Government will attempt it. Will not, then, the art-patrons of England join together to supply us with the fund we want? Subscriptions, endowments, means of all kind should be tried. How many noble fortunes are spent in maintaining a theatre under every dishonouring and degrading influence and association? Is there no man who will do for the sake of the loveliest of all mistresses, art, what men do for frowsy harridans, or vulgar, insolent, and ignorant women, with whom all contact is degradation? How shall the start be made? Who will be first in furtherance of a scheme of the kind?"

Amongst other supporters came Lord Dufferin, who, at a dinner in aid of the General Theatrical Fund, said that next in importance to the education of the people was the amusement of the people; and it had occurred to him that if a national theatre could be established on a satisfactory footing, we might, by providing rational amusement and recreation, find an engine with which to encounter some of the many vicious attractions which abounded in large cities. State subventions to the encouragement of the drama existed in most other European countries, and perhaps the time might come when it would be the case in England.

Mr. E. L. Blanchard, Mr. Horne (the poet), Mr. Arthur Sketchley, Mr. Joseph Knight, and others who had good right to speak, supported the proposition, and a committee was formed which included some well-known men of letters and eminent actors. Several meetings were held; three or four distinct schemes were submitted to writing, but after an adjournment at the close of the season the committee was never called together again.

The movement had its effect, admittedly, on the bills of some of the theatres; the manager of the very Home of Burlesque ("The Strand"), for example, quoting a portion of one of the letters written, proceeded to revive some of our standard comedies. The spasm, however, soon came to an end.

Recently the vexed question of the presen state and future prospects of the English stage has been examined and commented upon in various important quarters, with so much good sense and impartiality by writers evidently interested in the welfare of the stage, as one of the most valuable institutions for the advancement of education, and the encouragement of all the higher aspirations of the human mind, social, political, or simply literary, that if it were certain that what has been written would be everywhere read, the matter might be left where it is. It is necessary, however, to say the same thing again and again if we would have it known and acted on; and this must be my excuse for now bringing the subject forward. One of the most painful facts is the predominance of what Mr. Dion Boucicault has felicitously described as "commercial management." Any person, however incompetent to hold such a position, provided he has money of his own or of some one else's to risk in the speculation, may obtain the licence of the Lord Chamberlain to open and conduct a theatre, and consequently inflict upon the town any performances which he (the manager) considers most likely to bring money, no matter how destitute of literary merit,—how demoralising its tendency,—if it can only slip through the not too rigid scrutiny of the Examiner of Plays. Detrimental as this state of affairs must inevitably be to the drama, still we must, in justice, admit the blame does not attach itself to the manager or to those who

* By George Godwin. Read in the Art Department, at the Cheltenham Congress of the Social Science Association, October 25.

urnish the funds. It is a speculation perfectly legitimate as a matter of business, in which the only object of the persons concerned in it is to make money. If the *showman*, for such is an equally true designation of "the commercial manager," can increase his nightly receipts by ministering to the prevailing taste of the public, he will naturally do so; and the lower such taste may be, "the better," it has been truly observed, "is it for him, inasmuch as it can be more readily and cheaply gratified." He has also an additional incentive to such a course in the fact that his own standard of taste is as low as that of his audience, and that he honestly considers that the pabulum he provides for them is of the most delectable description. A booth at a fair or a "penny gaff" has the same *raison d'être*. Lamentable as this may be, there is a far greater evil of modern growth which has deteriorated and, at the same time, disgraced the stage of this country to a fearful extent, and which, to our shame be it spoken, does not and would not be allowed to exist on any other in the civilised world. It is a delicate subject to handle; but it is of too serious a nature to be ignored by those who would heartily aid in elevating the drama and supporting its professors, and I am, therefore, reluctantly compelled to speak out plainly on the subject. Much as we may regret that any theatre should be subject to the control of a person incompetent to appreciate the higher objects of the drama, and who only regards what should be a temple of the arts as a shop for the sale of any manufactures which may secure him the best return for the capital invested, with what feelings are we to contemplate a theatre avowedly directed, or notoriously known to be influenced by, an illiterate and disreputable *favorita*, possessing, beyond the charms of her person (which it is her pleasure lavishly to display to an admiring public), not the least qualification for her profession; not the remotest comprehension of the character, if perchance the part she has assumed has any character in it, or of the language, should it be innocent of coarse allusions, or contain a point more refined than the slang of the music-halls?

What class of drama worthy of the name can be expected to flourish under such circumstances? What a weapon is placed thereby in the hands of the enemies of the stage and the calumniators of actors and actresses. We are no purists. We consider that the green curtain that drops between the performers and the audience silently intimates that public criticism is limited to the scenes and actions it had been raised to exhibit, and has no right jurisdiction beyond the space they occupy. The playgoer who pays his money, but exercises his acknowledged privilege to hiss the heroine of the piece if in his opinion she acts badly or offends decorum, has no right to inquire whether she can produce her "marriage lines" without the walls of the theatre, or busy himself about her private life and associations. When, however, there is no talent to justify the *soi-disant* actress's intrusion on the stage, and the motive of her appearance is patent to the most careless spectator, it is an insult to the public which, if not resented by the audience, should be sternly reprobated by the Press,—not goodnaturedly glossed over, as we almost invariably find it. Such an exhibition would not be tolerated for a moment in any foreign theatre. Indifferent as a French *parterre* may be to the immorality of a *libretto*, complacently as it may contemplate the human (female) form divine, liberally developed by the fair performers in it, incapacity is an offence utterly unpardonable, and immediately visited with indignant sibillation. That such exhibitions have been too frequently witnessed in a London theatre is a fact as notorious as it is disgraceful. Happily, at the present moment London is relieved from such an exhibition; and the introduction of farcical and fantastical opera on our stage has also gradually ejected from it the silly and vulgar burlesques which recently infested nearly every theatrical establishment, and in which, as there was nothing to act, any young lady could gabble through her part, call attention to her bracelets, and be rewarded by a shower of bouquets at the fall of the curtain.

The *libretti* of Halévy and Meilhac and their *confrères*, or our own Gilbert and Albery, and the music of Offenbach, Lecocq, Hervé, Planquette, Sullivan, Clay, or Cellier, require artists for their interpretation and execution, and the demand creating the supply, we are daily gratified by the *début* of intelligent and educated aspirants to histrionic and vocal honours, who can speak English, and sing with taste and in tune. But another injury was done to the drama by the toleration of the press and the public of the above inanities. Actors of rare ability have been induced to prostitute their talents in attempts, frequently but too successful, to work up the sorry material into something that might give it popularity. It was distressing to see such thorough artists as Mr. Lionel Brough and Mr. Terry humiliated to the rank of clowns in a circus or the Merry Andrews that grin through a horse-collar; heartbreaking to think that Miss Ellen Farren, whose genius would enable her to rival Mrs. Abingdon or Mrs. Jordan, should be condemned to exhaust her animal spirits in galvanising the dry bones of a dreary burlesque. The darkest hour is said to be the nearest to dawn. There is hope that the darkest night of the drama has passed, and that a new day is awaking.

It is nonsense to talk of the decline of the drama. It has not declined,—it has simply been thrust aside by stupidity and cupidity. The English drama is like its greatest master, "Not for an age, but for all time." The threadbare worn quotation,—

"The drama's laws the drama's patrons give,
And those who live to please must please to live,"—

has been misinterpreted by theatrical showmen for their own purposes, and is still made the excuse for every desecration of the stage by many who know or ought to know better. Who are the drama's patrons? That large portion of the pleasure-seeking public who will go anywhere to see anything?—to whom a theatre is a theatre, and the one they prefer that in which they find themselves "pleased, they know not why, and care not wherefore"? Or are they the fast young men of rank and fashion, and their empty-headed imitators in the middle classes, who vote everything dull that is not meretricious, who occupy the stalls of any establishment where common sense is least respected, and decency most disregarded? or are they the more fastidious of "the Upper Ten," whose refined tastes lead them to frequent those theatres only wherein modern comedies, original or translated, faithfully reflecting the manners of the present day, are irreproachably acted and put upon the stage, with that attention to the minutest details of furniture and ornamentation which was formerly conspicuous by its absence? "*Chacun prend son plaisir où il le trouve*," and far be it from us to object to it; but I must again ask, are any of these the patrons of the drama?—of that drama which is the pride and glory of England?—the grandest drama in the world? Did it never occur to a manager that besides the masses we have enumerated, and whose special predilections are abundantly provided for, there are thousands, to speak moderately, who never willingly enter the doors of a theatre, and would eagerly patronise one in which they could enjoy the rare delight of witnessing the masterpieces of our great English dramatists adequately interpreted? It will be answered "Yes, it has occurred, and the experiment has been tried and failed." Shakspeare has been declared by an experienced London manager to spell "ruin," and Byron "bankruptcy." He invariably, however, flies to the "divine Williams" for assistance when his other resources fail him.

It is really pitiable to listen to such assertions, knowing, as we all do, the data on which they are founded, and painful to reflect that there are several clever public writers, themselves successful dramatists, who profess to hold such opinions, and that, too, in the face of facts of recent occurrence, which they cannot be ignorant of,—nay, which it may have been the duty of some of them to record as theatrical reporters. Can any instance be adduced by them of the revival of a great play, efficiently acted and artistically placed upon the stage, which has not been a financial success? Was "Hamlet" played at the Lyceum for upwards of one hundred successive nights to bare benches? Was "The School for Scandal" acted at "The Vaudeville" for four hundred nights to a "miserable account of empty boxes"? It is futile to contend that such successes were accidental, and their continuance could not be calculated upon,—that other revivals had been unproductive, &c. No sane person would venture to predict an uninterrupted course of success as the result of any management, and the only question is whether less money has been lost by the production of poor new plays than by the revival of sterling old ones.

Injudicious selection, unintellectual stage direction, incompetent exponents, must in these critical days entail failure, and deservedly so. It is sufficient for our argument that, as much loss, if not more, attends the failure of worthless modern productions, which have depended solely on spectacular effects for their attraction. Our antagonists, and there are amongst them authors of undoubted ability and considerable experience, have repeatedly expressed their firm conviction that the mission of the stage is to "hold the mirror up to nature" as nature appears to us in the present day. To

"Shoot folly as it flies,
And catch the manners *living as they rise*."

I do not deny that for a moment, and rejoice in the success that has attended many pieces which have been written on this principle. At the same time, the attention of its supporters should be called to the issue of its labours. Have they permanently enriched the English drama? How many standard plays have they added during the last fifty years to the grand catalogue of imperishable works bequeathed to us by the sublime poets and brilliant wits of the seventeenth and eighteenth centuries, and which, despite of fashion, prejudice, ignorance, and other disadvantages, are, and will continue to be, the staple of our stage as long as there is a stage? At the present moment I can recall but two, "London Assurance" and "Money," neither of them to be compared to the comedies already alluded to, but each possessing sufficient merit to ensure their vitality. But even the least laboured and most original of the two, "London Assurance," which so strictly and successfully fulfilled the conditions of exhibiting a faithful and vivid picture of the manners of the day, was subjected last year to revision by the author previously to its revival at the "Prince of Wales's." Since its production, wrenching off door-knockers and bell-handles have ceased to be the special amusement of young men about town, and rail and steam have superseded the then existing modes of travelling. The suppression of allusions to obsolete frolics, and the alteration of dialogue referring to locomotion, were considered necessary to render the comedy more acceptable by a modern fashionable audience. This was a great mistake. It eliminated one of the most interesting features of the play; destroyed the life-like picture of society at a particular period, which had been drawn with so much skill; while it was a proof of the consequences of the gifted author's own theory, which would necessitate the consequent re-writing and tinkering of a good play, every twenty or thirty years, to prevent it being consigned to the tomb of all the Capulets.

Hitherto only five-act comedies have been spoken of. Let us turn to the lighter class in three acts, which had their rise at "the little theatre" in the Haymarket, two of the best known of which are "Sweethearts and Wives," by Kenney, and "Paul Pry," by Poole. To this class many pleasant contributions have been made by Mr. Planché, Mr. Henry Byron, Mr. Albery, Mr. Tom Taylor, Mr. Gilbert, Mr. Frank Marshall, Mr. Burnand, and notably by the late Mr. Robertson, whose charming sketches of modern society have made the fortune of the well-managed little theatre wherein they were so perfectly mounted and so admirably acted. With curious inconsistency these fresh life-like productions have been sneered at by modern critics as the "tea-cup-and-saucer" school. What, in the name of patience, would they have? Here are the manners of the day, and the men and women of it, as truly represented as in a photograph; but how about the vitality of the works? How long will the best of them survive their lamented author? How many of the most popular pieces of this calibre, written in strict compliance with the rule propounded, will be in existence fifty years hence, or in any case ever take rank as part of our National drama? If we are to understand that sufficient for the day is the drama thereof, it is obvious that the drama of the day will be only the drama for the day, and that if the rising generation of playgoers can be infected with this opinion, we may bid a long adieu to "Hamlet" and "As You Like it," to "Julius Cæsar" and "A Midsummer Night's Dream"; even "The School for Scandal," and "The Rivals," those sheet-anchors of "the commercial manager," who, notwithstanding his contempt for them, flies to them in despair when rapidly drifting into Basinghall-street, will be consigned to oblivion as obsolete and unpardon-

able, as are the cocked hats and hoops of the time they were written in. Indeed, if my memory serves, there have been recently suggestions to that effect, and the dialogue of Sheridan has been denounced as indelicate by censors who saw nothing objectionable in the highly-coloured situations of Sardou. "The manners of the day?" Why all the greatest comedies that were ever written, from Aristotle down to George Colman the younger, reflect the manners of the day and country in which they were composed, and are consequently invaluable for educational purposes; and it may be asked, why, then, should not those of our present dramatists be destined to an equal celebrity and term of existence? The answer might not be considered complimentary, for it would suggest comparisons, and, to quote a still-existing comedy of some little reputation, "comparisons are odorous." I will content myself by asking where are all the comedies of Morton, Reynolds, and their contemporaries? Our present dramatists can scarcely be offended by being classed with the authors of "A Cure for the Heartache," "Speed the Plough," "Laugh when you can," "The Dramatist," and a score of other favourite pieces, which drew money in the time when "George the Fourth was king." They reflect the manners of their day, but with the exception of one or two which, cut down to the dimensions of a farce, have been ineffectually resuscitated under stress of weather, the stage knows them no more. I only call attention to the fact, and leave the critics to account for it. They would be compelled in fairness to admit that there are elements of vitality in the old comedies without which "the manners of their day" would not have made them still popular in ours.

It is foreign to my object to enter into a discussion respecting the sensational drama which has, to a certain extent, supplanted the old melo-drama of the English stage. It comprises many works of considerable power, well written, unobjectionable in subject, and affording excellent opportunities for scenic effect and good acting.

There is no desire to interfere with legitimate speculation, or to deprive any portion of the public of the entertainment most acceptable to them. On the contrary, our taste is so catholic that we can thoroughly enjoy any theatrical entertainment that is good of its kind, and rejoice that so much good of every kind is constantly being represented. My quarrel is with those who would prevent a large body of educated persons from enjoying an especial description of theatrical entertainment, which is undoubtedly of a higher order and requires artists of the greatest ability to interpret. We ask but for one theatre which, either by private subscription or Government subsidy, may be devoted to this object, and rendered independent of the caprices of fashion or the prevailing taste of the public. It must be a theatre in which the educated public can enjoy regularly, and not spasmodically, the best plays, acted with intelligence, and placed on the stage reverentially and artistically. This, the present system will not give. "Look at the results of the system as it is," says the writer of an excellent article in a new journal devoted to the stage,* — "Does private enterprise find itself equal to the task of presenting the noblest English dramas by thoroughly adequate companies all the year round? Can a manager, who necessarily has a keen eye for profit, be expected to avoid the long-run system, the 'star' system, and the system of discouraging all young playwrights and young players until their names are made? Can private enterprise found a school of acting, except in the limited sense in which a theatre, by cramping all its company to one style of piece, gives to its performances a characteristic manner of its own? The mere pecuniary difficulty in the way of securing such a company and such a *répertoire* as those of the Théâtre Français places the undertaking wholly beyond the reach of individual effort; nor, indeed, could it be overcome by any aid which was unable to compensate for comparative smallness of salary by offering *prestige*, permanent employment, leisure for study and pleasure, and the prospect of a pension in years to come. Now these advantages, which are at the very root of the success of the Parisian theatre, cannot, as it seems to us, be secured except by means of a subsidy paid in some way or other by the nation for that which we hold to be an incalculable national gain. If it be an advantage to possess, at least, one theatre which may be conducted without any necessity to look for hand-to-mouth profit, which may, to some extent, practise art for art's sake, and which may guide rather than follow public taste, then is that advantage one for which we should be prepared to pay."

My own conviction is strongly in favour of a State subvention,—a subsidised theatre where the glories of our past writers might be enjoyed and new poetical and thoughtful works fittingly brought forward. The chances for obtaining this have lately greatly increased, and opinions in its favour have been expressed in influential quarters. Mr. Gladstone, in the course of a letter to the editor of a theatrical paper already quoted, said, in reference to some articles which appeared in it a few months ago,—"I have already thought that there are strong arguments,—among them some which may be drawn from the existence of institutions like the Royal Academy,—to show that the Drama requires, in order to its prosperity, some great centre of attraction and of elevation." This must be regarded as a most important expression. From abroad, too, comes the report of a conversation between the King of Italy and Signor Rossi; in the course of which the King spoke of the low ebb to which the histrionic art had fallen in that country. "What we want," he said, "is a theatre like the Comédie Française. Your art is a powerful instrument of civilisation. That civilisation must emanate from Rome. My father loved and esteemed you, Signor Rossi, as well he might. You are an honourable remnant of most distinguished troupes. Halcyon days those in which they flourished! The art was then well represented, and I promise you those days shall return before long."

To obtain this subsidised theatre, however, in England, may be a work of time, and would probably require, as a first step, a properly organised and regulated company; whereas it is most desirable that such a theatre as we are looking for should be established at once. The question then is, how can the experiment best be tried? And I fall back on the plan which I have ventured before now to suggest for consideration,—that plan which gave us the Great Exhibition of 1851 and some of its successors,—a *list of guarantors;* a hundred persons, say, subscribing each a certain small sum for the first expenses, and giving their names for a larger sum in case of necessity; a small committee of the guarantors to supervise; and a proper and responsible manager. An existing theatre to be taken (pending the time when a model house should be provided), large pit, and moderate prices; no long runs; no short hirings of actors; a dramatic school attached; the advancement of the drama, and the healthful amusement and delight of the public to be considered the paramount object of the undertaking. Such a scheme properly brought forward, would, I am strongly disposed to believe, soon find the requisite number of supporters.

A few words now from others.

Being able to quote the opinion of statesmen and dramatists, I thought it desirable to obtain also the opinion of some eminent actors. Amongst others, I applied to Mr. Hermann Vezin, who justly enjoys a high reputation as an intellectual artist, and to Mr. Henry Irving, and append their replies:—

Mr. Vezin says,—"You ask me my opinion as to the advisability and possibility of establishing in London a theatre analogous to the Comédie Française in Paris, the Royal theatres in Berlin, Vienna, and other capitals of Europe.

I answer that it has always been my most ardent desire; that I believe, without such a theatre, the English drama will never stand upon the eminence it could and should attain, and that it is possible to establish such a theatre, either by Government subvention, or by the aid of subscriptions of the wealthy, or, in what I think the best plan of any, by a guild of actors themselves, without any exterior aid.

English theatres, being private speculations, their managers, even when gentlemen of high culture and artistic aspirations, *must* find their judgment unsteadied by the great pecuniary risks they run. If actors, they are tempted to sacrifice their theatres to their personal ambition; if merely tradesmen, to an unwise parsimony.

There are two theatres in London whose managers spare no expense, and make their interest as actors subservient to the interest of their theatres. But the example set by the Bancrofts and Mr. Hare does not seem likely to obtain many followers, nor should the welfare of the art depend upon the doubtful chance of a constant supply of such managers.

It has frequently been the case that a great actor, finding it impossible to attain his proper position under other managers, has found himself compelled to take a theatre, that he might have the opportunity of playing the parts for which he felt himself suited. Edmund Kean and George Frederick Cooke were about the only ones who attained greatness without the burden of management. Garrick, the Kembles, Macready, and Charles Kean, were all managers; but they all would have infinitely preferred to remain simply actors, if their proper ambition and artistic tastes could have been gratified in some one else's theatre.

The actor must deteriorate when burdened with the cares of management, and the manager cannot possibly attend to all his duties if he is an actor as well.

I am frequently applied to by young ladies and gentlemen, who wish to make the stage their profession, as to how they should proceed. It is impossible, in the present state of things to give them a satisfactory answer.

I should like to say, 'Go and enroll yourself on the books of "the English theatre." You will then be put through a course of training in elocution, singing, fencing, deportment, dancing, and so on. You will have to go on the stage as supernumeraries; be gradually entrusted with a few lines to speak, and meantime, at intervals, *matinées* shall be given, in which you and your fellow pupils shall play pieces selected by the teachers for the purpose, so you will get your practice; and, if capable, be gradually advanced to play such parts in the regular performances as may not be beyond your powers.'

I could tell some disheartening tales of weary waiting for opportunities that may never come, both with actors and authors.

But it must be confessed that, with all its disadvantages, the British drama is in a very healthy condition. All it wants is its opportunities. In brief, we want a theatre which shall be devoted to the cultivation and exercise of the dramatic art for its own sake; not to making money, not to promote the interest of any individual actor, not to the production of plays written down to the level of the lowest understanding.

The greed for money seems to me to be at the bottom of most of the evils complained of, and yet I believe that such a theatre as we wish to see established would make more money than any of those managed on existing principles.

HERMANN VEZIN."

Mr. Irving writes thus:—

"My dear Mr. Godwin,—The question of the establishment of a National Theatre is surrounded by so many difficulties, and has so many side issues, that the time at present at my disposal does not allow me to go properly into it. Still the broad idea is one on which a few suggestions, which are the outcome of my thought and experience, may be of service to you.

The two questions which must from the beginning be held in view are:—

Is a National Theatre desirable?

Is its establishment upon a permanent basis a possibility?

With regard to its desirability I have little, if any, doubt. In this country artistic perfection or a high ideal is not always the road to worldly prosperity; and so long as open competition exists there will always be found persons whose aim is monetary success rather than the achievement of good work. Thus mere spectacle, and, at times, even ribaldry, are employed to swell the pockets of managers at the expense of public taste. In order that the Stage may be of educational value, it is necessary that those who follow its art should have an ideal standard somewhat above the average of contemporary taste. This standard should be ever in advance, so that as the taste and education of the public progress the means for their further advancement should be ready. To effect this some security is necessary. In an age of competition men cannot afford to be idle. "Whilst the grass grows the steed starves," and to wait in patient inaction for the coming of better days is antagonistic to the spirit of artistic effort. In order that those who are capable of improving others, and who are willing for the purpose to sacrifice in a measure their personal wishes and desires, should not lose their power, some pro-

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tection should be extended at such times as might be necessary. Of course, each individual may in his own time do much; but life is short, and when the individual withers all, or nearly all, the influence of a life of labour, which might, under proper system, have become solidified into a permanent good, passes away. If then the purifying and ennobling influence of the art is to be exercised in such a manner as to have a lasting power, it is necessary that the individual be replaced by something in the shape of a corporation, or by the working of some scheme by its nature fixed and permanent.

It would, I think, be at present unadvisable to touch upon the subject of State subsidy with reference to the British stage. The institutions of this country are so absolutely free that it would be dangerous,—if not destructive,—to a certain form of liberty to meddle with them. *Quid pro quo* is a maxim which holds good of State aids, and a time might come when an unscrupulous use might be made of the power of subsidy. Besides, in this country, the State would never grant monetary aid to individual enterprise under any guarantees whatsoever. As the State could not possibly of itself undertake establishment and management, the adoption of some corporate form would be necessary with reference to the stage before the question of subsidy could be raised with any possibility of success.

A 'National Theatre' implies an institution which, in its nature, is not either limited or fleeting. Such a scheme must be thorough, must rest upon a very secure basis, and must conform to the requirements of art, polity, and commerce. It must be something which, in the ordinary course of things, will, without losing any of its purpose or any of its individuality, follow with equal footsteps the changes of the age. In order to do this it must be large, elastic, and independent.

Let us consider these conditions.

Firstly, as to magnitude. As the national theatre must compete with private enterprise, and be with regard to its means of achieving prosperity weighted with a scrupulosity which might not belong to its rivals, it should be so strong as to be able to merge in its steady average gain temporary losses, either the actual loss of outlay upon unproductive pieces or the negative loss consequent upon political or commercial depression. Also its body should be sufficiently large to attempt and achieve success in every worthy branch of histrionic art. For this a great number of individuals would be necessary, so that suitable selection might in every case be made.

Secondly, the corporate body should be to a certain extent elastic. The production of talent in a country or an age is not always a fixed quantity; and whilst for the maintenance of a high standard of excellence no one manifestly under the mark of his fellows should be admitted, all those worthy of entrance should be absorbed. The evil consequent upon the accident of personal friendship, which so often works unfavourably amongst self-electing bodies, should be reduced to a minimum.

Thirdly, the National Theatre should be independent. Once established under proper guarantees, it should be allowed to work out its own ideas in its own way. Art can never suffer by the untrammelled and unshackled freedom of artists,—more especially when the idiosyncrasies of individuals, with the consequent possible extravagance, are controlled by the wisdom and calmness of confluent opinion. Such a body as the corporate members of a National Theatre would, to a certain extent, be a legislative assembly, dealing only with questions affecting the drama.

Thus we arrive at the conclusion that if in this age a National Theatre is to be established, it must partake of the nature of a corporation, large, elastic, and independent. It must spring originally from personal enterprise, and must depend for existence upon the exertions of itself as a body, and of its component members as individuals, till such time at least when good work done in the past, and a uniformly wholesome influence upon the education and morals of the public, have given it a claim to recognition as an institution worthy of a place in the machinery of the State.

Such a scheme once conceived, the next question is as to the possibility of carrying it into execution. In this country there is a great mass of talent scattered widely. It embraces every phase of thought and manner, and is composed of elements incongruous, and differing in value, in so far as the different individualities and their surroundings are concerned. To systematise and reduce to a harmonious whole this mass of heterogeneity would be a work of extraordinary difficulty. At the start the labour of organisation would be Herculean; and I cannot shut my eyes to the dangers or to the magnitude of the effort.

But if the difficulties of systematisation would be vast, the advantages would be vast also. The merits of the concentration of purpose of men following kindred pursuits have been tested already, and the benefits both to individuals and the bodies are known. Our art alone has as yet no local habitation, no official recognition, no political significance. Should the scheme of a National Theatre be carried out, great results might follow,—much good to the great body of aspirants to histrionic fame. Provision might, at a small expense to each individual, be made for the widow and the orphan. Old age would be divested of the terrors of want. A restraining influence would be exercised on unscrupulousness. A systematic school of teaching would arise; and the stage would acquire that influence and position which, whatever they may be in the present, are to be in the future great. HENRY IRVING."

I must now come to an end; add "a tag," and ring down the curtain, entreating, not your applause, but your aid in a good and important cause. What is asked for is the provision of one theatre not wholly controlled by the predominant taste of the public, — the assured establishment of one house in which the best works of our dramatic writers, living and dead, should be constantly and worthily presented.

MORE LIGHT WANTED.

THE daily papers are full, day after day, of a subject which unfortunately has touched the pockets of a respectable class of people, many of whom can ill afford to lose a third of their invested savings, more closely than failures in trade or fears of war. The foolish and mischievous panic in gas shares has inflicted great injury on many innocent people. We hope that it may not hereafter prove to have been excited, or increased, for purely selfish purposes, but there is only too much reason to fear that such is the case. One of our contemporaries, to which we have before referred, as almost alone in the daily press in its mode of dealing with engineering subjects, has just published an analysis of returns of the six Metropolitan Gas Companies, in the hope that "a clear understanding of the vast capital invested in gas will impress the necessity for avoiding panic, and for being very careful in the measures that may be taken affecting interests so important and widely ramifying." We quite agree with these views, and all the more so because on the 11th of August, 1877, we gave our readers an account of the position and territory of these companies at considerably greater length than the article to which we refer. By the attention which we called to the territorial distribution of London between these companies, we intimated, and probably led people's thoughts to dwell upon, the advisability of certain fusions of interest. On the 24th of August of the present year we had to call attention to the proposal of a fusion which, if it had not been originated in consequence, was certainly foreshadowed by our former article. And in that paper, written before the outbreak of the recent electric storm, we pointed out the grave probability of the application of electricity to some of the purposes of lighting, and suggested certain financial precautions as desirable to be taken in anticipation of such a contingency. As we have thus,—as we may confidently appeal to our readers to bear us out,—twice been so far beforehand in pointing out as likely to occur what subsequently did occur, with a suddenness startling to those to whom the subject is new,—so now let us urge upon all whom it concerns the advice never, unless actually compelled, to part with remunerative property under the influence of a scare.

Mr. Haywood's report to the City Commissioners of Sewers on the electric light, of which we gave some account in our last number, seems to be characterised by caution and by good sense. In the absence of details as to Mr. Edison's last inventions we are bound, like Mr. Haywood, to wait for further information. But we wish meantime to call attention to two points which, so far as we have formed an opinion, will hereafter prove to have a controlling influence on the matter. One relates to an important element of economy. We are not aware that any attempt has been made to discover how much of the result of the combustion of a given bulk of ordinary gas is thermometric, and how much calorific. We can not find, in the valuable treatise on gas by Mr. Richards, which we reviewed some time since, any information as to the heat developed by the combustion of gas, or even as to the exact chemical composition of ordinary coal gas. It would, of course, be easy to ascertain the amount of heat produced by burning 1,000 cubic feet of coal gas. Yet that amount, whatever it may be, is pure waste, when gas is used for lighting. The quantity of light yielded by any kind of gas is dependent on several conditions, independent of the chemical constituents of the gas itself. The pressure on the jet, the form of the burner, the temperature of the surrounding atmosphere, the quantity of atmospheric air supplied to the flame, all are influential as to the light given out. If an Argand burner be made with holes of such dimensions that a pressure of 40-10ths is required for the emission of 5 ft. per hour, the gas will give only a blue flame, like that of pure hydrogen, which is practically devoid of light. In the same way, if the pressure on a fish-tail burner, which is calculated for the consumption of 5 ft. per hour under ordinary circumstances, be increased, the illuminating power of the gas is diminished. The proper light would have been that of twelve candles. If the pressure is highly augmented, Mr. Richards says, a roaring flame is produced; and if as much as 22 ft. per hour is emitted, a peculiar coloured flame is obtained, yielding no appreciable light. As far as any other works within reach on the subject go, the quantity of light obtainable from gas under different circumstances has been made far more an object of study than that of heat. But there can be no doubt that a very considerable part, and, under some circumstances, the larger part of the force liberated by the consumption of gas takes the form of heat, rather than that of light. For illuminating purposes all this is lost. Unless, therefore, we can so regulate the consumption of gas as to burn it by different methods, when light and when heat are required, a great economic loss must always accompany the use of gas for lighting or for heating alone. The electric light is light and but little else. Apart, therefore, from the question of the present condition of the invention, the electric light has the element of a considerable economic advantage.

On the other hand, waste by conduction is in favour of gas. In the metropolitan gas-works from 4 or 5 to 7 or 8 per cent. of the gas produced is unaccounted for, and is supposed to be wasted by leakage. The richer gases, from cannel-coal, suffer more proportionately in that manner than the ordinary quality. The amount is large: it is probably capable of reduction by care in the fittings and pipes, but its maximum is known. As to electricity, the law of its transmission is, that it is in the exact inverse proportion of the resistance. Thus while it is indefinitely divisible, even apart from any new discovery of Mr. Edison's, there is a sharp limit to its conductivity. In the present state of our knowledge, suppose that a given current of electricity were so directed as to keep 100 burners alight; this, if difficult, is conceivable. If, then, five of these burners are extinguished, the whole amount of the light would be distributed between the remaining 95. This it would, indeed, be possible to obviate, but only at the cost of the inconvenience that the consumption of power would be the same for each burner (while the set was in operation), whether it were or were not actually giving light. Nor is this all. It is stated that coalesced streams of electricity give more total light than divided streams. Thus a flow of elictricity that would keep up two lights of 800 candles each would produce one light of 2,000 candles. It is possible that here may be found a compensation for the advantage secured by the absence of heat. But yet more serious is the difficulty that the resistance increases in a more rapid ratio with the length of the circuit. Mr. Heywood speaks of 1,000 yards as the limit for the length of the connexion; and with every increase in length must be introduced, in order to obviate the loss of light that would otherwise occur, a corresponding increase in the diameter of the conducting-wire, or in the power of the machinery. It is here that the shoe now pinches. We have no heard that Mr. Edison

has endeavoured to grapple with this difficulty. We more than doubt whether it is not insuperable. As long as we are driven to the expedient of erecting electric works and machines at every half-mile in order to light the metropolis, we may safely consider that it will be long before the consumption of gas is materially diminished in consequence of the introduction of the purer and more beautiful light.

The minds of so many inventive and intelligent men are now directed to the subject of electric lighting, that almost every day brings forth a piece of intelligence worthy of notice. Since the preceding lines were penned, a letter from Mr. St. George Lane Fox has been published in the *Times*, in which that thoroughly well-informed and successful electrican has stated, in terms proper to this science, very much the same thing that we have previously ventured to observe. He speaks experimentally, as well as theoretically, as to the rapid loss of power attending on the prolongation of a circuit, and evidently is of opinion that this is so far an inseparable attribute of electric conduction that it is not a matter with which ingenuity can cope. And in case of the current in an insulated wire being affected by induction from the electricity of the earth, we should apprehend that the more intense the current, the more intense, in proportion, would be the disturbance, and the greater the loss. This is a subject which it is for the specialist thoroughly to thrash out, and no doubt he is carefully doing so.

For us, we confess that for the moment the illuminating part of the question has less direct interest than the loss which is likely to be sustained by investors. Clergymen, widows, trustees, and the like, all are being frightened out of a valuable property. We fear that, if all were told, it might be found that some of those who are loudest in their prophecies as to the utter ruin of the gas companies, are only looking out for the lowest point of depression, caused by the panics they are augmenting, in order to buy. Those who write letters, full of dismal forebodings, should also be viewed with strong suspicion, if the fact turns up that their names are also coming before the public as directors of new companies, or vendors of new patents. There are some extremely sound and pertinent remarks on the gas panic, headed "Words of Caution and Advice," in the journal called *Money*, for 16th of October current. The writer enumerates twenty-eight gas companies, of which the capital amounts to nearly 12,000,000*l.*; and from the prices quoted for the shares of some of them six weeks ago, considers that the value of the capital thus given must then have been reckoned at nearly double the nominal amount. Twenty English companies form so small a part of the whole number of gas companies that this writer holds that an aggregate of a hundred millions sterling will not exceed the value of the stock of British enterprise of this kind, together with that of the shares of foreign gas companies held in this country. As to this, we may recall the fact that the capital of the Metropolitan Gas Companies alone was returned at a little over 12,500,000*l.* at the end of 1875, and that then 100*l.* shares of the principal of them, as the Gas Light and Coke Company, sold for 200*l.* These shares have fallen,—not in value, but in price,—by as much as 5*l.* per day in this foolish and mischievous panic.

Mr. Edison's application for an English patent has now been made, and appears in the records of the Patent Office under date of the 23rd of October. It is in the comprehensive language, "Method of and means for developing electric currents, and lighting by electricity." On the 14th of October a Frenchman, M. Antoine Arnaud, applied for a patent for "Indefinitely dividing electric currents," He must, in our humble opinion, have been ill-advised when he inserted the adverb, which may yet give some trouble in the rich harvest of law-suits which the gentry of the long robe already scent from afar. It may also be matter for legal wrangle how far Mr. Edison's letters will protect apparatus for the division of currents; while "lighting by electricity" is so vague that no doubt the grant of such a letter might be opposed by Mr. St. George Lane Fox, who has a method and means for lighting gas by electricity (which he thinks likely to be more generally useful for that purpose than electric light), which is quite another thing. The account which is given by the obviously very well-informed writer in the *Standard*, of experiments made by M. Arnaud, is of great interest, as pointing towards the counteraction, to a certain extent, of what we have spoken of as the most serious obstacle to the public use of the electric light, viz., the rapid enfeebling of the current by distance. According to the amount given by the writer in question, M. Arnaud has succeeded, not only in keeping up a number of lights on the same circuit, so arranged that if one or more are extinguished the others are not affected, but, further, in maintaining an equal intensity of current through the whole circuit. A galvanometer showed a deflection of 7 degrees at whatever part of the circuit it was placed; while on the same circuit, when the regulating apparatus of M. Arnaud was removed, the resistance was shown by a deflection of 12 degrees at the end nearest the battery, and only of 2 degrees at that furthest from it. A gain of this nature is not lightly to be spoken of. Still it is a gain in distribution alone. We should like to ask what would be the deflection of the galvanometer if a second 200 yards of wire, without any additional candles, were introduced into the circuit. As it is, the force of the current in one part is weakened as much as that in the other is increased,—the mean is the same. And it is the mean resistance caused by length of current of which we have spoken as the formidable obstacle to lengthened circuits. In the experiments in question 200 yards of copper wire are mentioned as the length of the current. What would have been the effect with a current of 2,000 yards? And if we are limited, as seems to be the case, to something like half-mile distances apart for the erection of generating machines, we think the owners of gas-shares will be a long time before they need be much alarmed as to the impending uselessness of their plant.

The title of the patent applied for by Mr. C. W. Siemens, on the 22nd of October, is for "Improved means and apparatus for electric illumination." A far keener and more practised knowledge of the danger of the verbal quibbles that beset the patentee is aimed at by Mr. Siemens than by either the French or the American inventor. We may regret that questions affecting large interests, brilliant discoveries, and the lucrative employment of large sums of money, should be debated on the narrow ground of the grammatical meaning of a sentence, of which the true meaning ought to be obvious to every one. But, however little we may relish it, such is the fact; and it is a fact that intending patentees cannot too forcibly keep before their minds. And not only is it a fact, but it is an unavoidable fact. When a question comes before a tribunal for decision, it is because it is disputed. If there were not two ways of looking at it the judge would not be called upon to decide. But no human judge, in a disputed question of magnitude, can be trusted to say, "The bargain, or the bequest, or the specification, probably, or obviously meant so-and-so." Justice can only say what is, not what was intended to be. The actual force of words must be taken by conclusion. From this there neither is nor ought to be any escape. The safety of property in civil cases, and of life and liberty in criminal cases, depends on the exact determination of fact; and fact is only determinable before a tribunal by the exact grammatical force of the language in which it is described. There is no time to go back to ask, "Did you mean so-and-so?" The procedures of justice are daily dragging out to a length which (like that of the electric circuit itself) promises, if much stretched, to render justice impossible in the country. Therefore, let inventors look to it. If they have clear ideas, let them use such words as shall cover their claim, without prematurely disclosing its nature, and do no more. If it does less, the patent will be invalid. If it does more, it lets in the opposition of a whole host of adversaries, who would have given no heed, very likely, to an application confined within reasonable terms. Thus, as we have observed, Mr. Edison's title would admit of an opposition which, though no doubt it would be overruled, would cause trouble and expense, because he says lighting by electricity, which might mean setting gas or anything else on fire by electricity. And then a question will no doubt be raised whether a claim for developing electric currents will hold good for a means of dividing electric currents. We offer no opinion on the subject, except that it is a point on which dispute is possible, and that the language is therefore ill-chosen. So, again, there may be an interminable debate on what is indefinite as to division of the electri current.

We may add a word in explanation of what was intended by our preceding remarks as to heat. It is, of course, not the case that the electric light is developed without heat. But it is true that the heat lost by radiation from this incandescence, in proportion to the light emitted, is enormously less than in the case of gas. When combustion is effected by the electric current, it is the combustion of carbon alone, as far as the apparatus supplies the charcoal burned. In the gas, the proportion of heat-giving hydrogen, of which the illuminating power is low, as compared to the light-giving carbon, has to be taken into account; and, as we have seen, much of the light actually obtained depends, not only on the elements, but on the *mode* of combustion.

We quite agree that the subject of electric lighting is one that most properly commands a great share of public attention. For many purposes it is fit that such should be the case. For lighthouses, as we have before hinted, we hold that electricity already supplies the proper method of illumination. For military and naval signals, for lighting men-of-war, and possibly all sailing vessels, and, most important of all, for lighting coal-mines, we trust that nothing will be found wanting, in order to render speedily available so safe and so brilliant a means of producing light. As to public places, churches, theatres, and halls, we reserve our opinion; there is yet much to learn. As to certain nuclei of public highways, we are content to wait the result of the experiments now being carried out before forming an opinion. Perhaps an experiment directed by the engineer of a public body may not be the best means of ascertaining what an invention is worth. It might be better to place a definite sum of money at the disposal of the inventor, and let him do his best. On the other hand, security may be gained by the mode adopted. The inventor may say, "If the metroplitan engineers make my light answer, it is evident that it must do so under any circumstances." That, however, may be a question hereafter to decide. As to the use of the light for domestic supply, we think the time must be, at all events, distant. For home use, we take it, in order to be safe and satisfactory, it must be home made. The supply is subject to too much doubt as yet for any person to cut off other sources of illumination in faith of the electric light. Then another difficulty comes in. How will it be in the case of a thunderstorm? We have had storms within the last few years in which the electric telegraph has refused to act for four or five hours. Only with great danger could the operators approach the instruments. Very often part of the coil of wire was fused. Now if, to the usual awe of a great storm, were added the plunging of the metropolis in darkness during its continuance, and for an hour or two after, how we should sigh for our exploded gasometers, supposing them,—which we do not,—to have been exploded. This is neither an imaginary nor an unlikely occurrence. Its bearing on the question has an importance which it is difficult to exaggerate.

Lastly,—to those who have sold foolishly,—we should say buy back while you can do so without buying yet more foolishly. Do not buy at 180 when you sold at 140. Yet that is what people rush to do. And for any persons who yet feel in doubt and hesitation we will give another piece of advice. Procure a copy of Mr. Haywood's report, and study it from beginning to end.

Memorial Chapel, Reedham Orphan Asylum.—The new chapel which has been "erected to commemorate thirty years' service of the Rev. Dr. Aveling as honorary secretary of the Reedham Orphan Asylum, and for the use of its inmates, but principally for the glory of God," has been opened. The foundation-stone was laid on November 1st, 1877, by Mrs. Spalding, of Ore-place, Hastings, daughter of the Rev. Dr. Reed, founder of the asylum. The church is placed close to the northern end of the asylum buildings, from which it is separated by the girls' playground. In style it is quite a contrast, being Gothic in design. The exterior walls are of Kentish rag and Bath stone. Internally it is divided into nave and aisles. The floor rises gradually from front to back, and there is at present seating accommodation for 350 children and 100 adults. The architect is Mr. John Sulman, and the builders were Messrs. L. H. & R. Roberts. The total cost was 3,800*l.*

WOODWORKING MACHINERY AT THE PARIS EXHIBITION.

BY M. POWIS BALE, M.E.

JAMES WATT once remarked that one of the greatest of all prerogatives was simplicity, more especially when applied to machinery. This seems to have been borne in mind by the greater number of the exhibitors of woodworking machinery at the present Exhibition in Paris, whose aim appears to have been of late devoted rather to the simplification of what is already in existence than to the production of anything new. This may in a measure be accounted for when we consider the giant strides made in this branch of engineering during the last twenty years, and the present long-continued depression in trade, which has affected and retarded its progress in a marked degree, rendering it necessary that the manufacturer should not incur outlay in the shape of trials and experiments other than are absolutely called for. In these days of high wages and restricted hours of labour, the maker of "labour-saving" tools has a somewhat difficult task before him,—viz., to produce, at a price that will find purchasers, a machine combining the minimum amount of complication with the maximum of productive efficiency: this has been accomplished by some engineers with considerable success and credit to themselves; but it has also been the occasion of flooding the market with so-called "cheap machinery,"—neither reflecting credit on the producer, nor giving satisfaction to the purchaser. As this matter is, however, at present slightly out of our province, we pass on to notice the machines exhibited at Paris, commencing with the British section.

This section contains a large selection of machines which, with few exceptions, combine in a marked degree excellence of design and workmanship,—two great essentials in the rapid and economical conversion of wood, owing to the high rate of speed at which it is necessary to operate. The castings of the main framings and the finish of the general details of the machines exhibited by several of the leading houses, deserve high praise, and afford an example that makers in some other sections would do well to imitate. Absolute novelties in this section there are none; but we purpose noticing briefly such improvements in the construction or mode of operating the machines as we may think of sufficient general interest.

Commencing at the northern end of the British Section, Messrs. A. Ransome & Co., of London, exhibit a large collection of tools. We noticed a well-designed and compact single deal-frame, adapted to cut deals 14 in. by 4 in., suitable for builders' purposes. The main frame is cast in two pieces, and the swing-frame works in phosphor-bronze bearings. It is fitted with vertical roller-feed, and speeded to cut at from 1 ft. to 8 ft. run per minute; a simple lever and toothed wheel arrangement is provided for adjusting the fence rollers. The trying-up machine exhibited is of the ordinary type; the cutter-block is of steel, revolving in plain bearings, which are lubricated from either end; a variable feed and quick return motion are arranged for travelling-table. Fitted to this machine, over the cutter-block, is a pneumatic arrangement for carrying away the shavings made; a 20-in. fan, running at some 2,000 revolutions per minute, performed its work sufficiently well, but the noise made in so doing was considerable.

The panel planing-machine shown was driven from both ends of the cutter-block spindle, which is an advantage when planing up very wide stuff. The general joiner carries a 30-in. saw, and the main framing is cast in one piece. The moulding and planing table is arranged to rise and fall, and a bottom revolving plane-iron fitted in a drawer first operates on the wood on the under side, thus leaving a flat surface for it to travel on. The side cutter-blocks are driven direct from the countershaft; the tenoning is performed from the ends of planing-machine spindles, and a vertical spindle is provided for working irregular mouldings up to 4 in. deep. It is altogether a well-arranged machine of its class. A Richards' patent mortising-machine, speeded to make 600 strokes per minute, was shown, also a set of machines for making powder-barrels. We noticed a neat little band-saw setting machine; it was worked by hand, and made adjustable to depth, pitch, and set of saw.

Messrs. Reynolds & Co., London, exhibit an assortment of the lighter class of wood-working machines, including a new form of hand mortising machine. This machine has two separate vertical slides (one holding mortise-chisel, and the other the core-driver), fitted to the main standard of the machine. These are worked by two separate hand-levers, attached to which are two rocking side rods, which allow the chisel to have a greatly-increased stroke, thus obviating the necessity of rising and falling the table to suit different thicknesses of stuff. The chisel has a stroke of 11 in., and this plan should be found advantageous when mortising right through a piece of wood; but when a mortise is to be made only half-way through, the ordinary form of machine is preferable. The planing arrangement of the general joiner shown is fitted with a powerful feed-motion adapted for feeding wet timber. It consists of two plain and two fluted rollers, all driven by toothed gearing, and the rate of feed can be varied as required. The saw-bench attached is fitted with a self-acting feed-motion, and the counter-shafts necessary are driven at long centres, which is a favourable contrast to some other plans in vogue. The workmanship, however, in this machine would bear improvement.

Messrs. Charles Powis & Co., of London, exhibit, amongst other tools, a powerful trying-up machine, fitted with side cutters driven from a countershaft attached to the end of the machine, and an additional roller feed for ordinary floor-board planing, which can be fixed or detached at will. We noticed the main spindle of the general joiner shown was divided in the centre. The planing-block is arranged at one end, and the circular saw at the other. The moulding and planing table is fitted with an efficient self-acting feed. Tenoning is performed by means of discs, and a tenon can be cut complete at one operation. The different classes of work can be performed independently of each other. A combined hand or steam-power machine, specially suitable for cabinet or other light work, is well deserving of notice. It is fitted with a saw-bench, with rising and falling spindle, a band and fret saw and boring apparatus. The fret-cutting arrangement has lately been added. It is driven by an eccentric direct from the saw spindle, and will cut up to 4 in. deep. The table of the large band-saw machine is canted by means of a modified form of a ball-and-socket arrangement, which should answer well. A variety of Messrs. Powis's well-known hand-power machines completes the display.

Messrs. Samuel Worssam & Co., of London, exhibit a number of well-designed machines, including a specimen of their patent general joiner. The side-cutter spindles on this machine are attached to the planing-table, which is arranged to rise and fall. The various operations of sawing, moulding, tenoning, &c., can be worked separately, or in conjunction, without change of appliances. The tenoning spindles, which are fitted with saws or cutter blocks, as preferred, are driven from the main saw spindle, and the tenoning clamp for holding wood has a convenient gauging arrangement. The slot mortising apparatus is compact, and the mortising-table, which has a lateral and transverse movement, is fitted with stops, which regulate the length and depth of the mortises. The general arrangement of this machine is, on the whole, more simple than others of the same class, and reflects considerable credit on its designers. In the trying-up machine shown the pressure-rollers, usually placed before and behind the cutter-block slide, are here both brought in front, thus securing a greater and more uniform pressure at the point where the cutter strikes the wood, which is an improvement. The cutter-block spindle runs in centres, but this plan can hardly be commended for the heavier class of machines. The travelling-table is fitted with double-rack gear, thus securing always an adequate bearing for the teeth of the driving pinion. We noticed a compact deal and flitch frame, adapted to cut a single deal, 1 ft. 6 in. by 6 in.; it was fitted with rack and spur feed-gearing, with quick-return motion and lateral and vertical adjustable pressure-rollers, the latter fitted with spiral springs so as to allow them to adapt themselves to any inequalities in the timber. The saw-wheel spindles of the band-saw exhibited were arranged to run in double gun-metal bearings, in preference to allowing the wheels to revolve on a stud, as is the practice of some makers. A handy outside-cutter moulding machine for small work was in operation, and turned out mouldings of superior finish.

Messrs. Robinson & Son, of Rochdale, display a large assortment of machines. A horizontal single-blade board-cutting machine, adapted for cutting coach panels and other thin stuff, was in operation, and turned out very satisfactory work. It is driven by a connecting-rod from a crank which is arranged to rise and fall on a countershaft. This machine is fitted with Robinson & Smith's patent swivel and butting slide, which enables the frame carrying the saw to be driven at a high rate of speed, as, no matter what angle the connecting-rod is at, owing to the swivelling arrangement, there is no undue strain on the saw-frame or bearings; the table carrying the log is worked by rack-gear, and is fitted with "dogs." The saw is made to cut both ways of the traverse at a speed of from 3 ft. to 5 ft. per minute in 24 in. logs. We also noticed a compact little thin-stuff planing machine, adapted to plane wood, ½ in. thick, up to 60 ft. run per minute, but the feed could be varied according to circumstances. The wood is fed by means of six plain rollers, driven by toothed gearing, which force it over a fixed iron fitted into a movable drawer. We were shown a combined slot, mortise, and planing machine, designed for small establishments; the planing-table is arranged to rise and fall, and the wood is passed over the cutting iron; the slot mortising arrangement is very handy, and the wood is brought rapidly up to the cutting-tool by a quick-threaded screw. The table of the band-saw is canted by means of a worm wheel and toothed quadrant, and the saw is started gradually by a screw-motion, which is an improvement Messrs. Robinson have introduced into others of their machines. A self-acting roller-feed saw-bench, especially adapted for sawing deals and battens; and a sample of Armstrong's patent dovetailer, were among their other exhibits.

Messrs. Western & Co., of London, display an excellent selection of machines; they are, however, not in motion. We especially noticed the novel mode of driving and reversing a small single-spindle vertical shaping-machine, enabling the workman at all times to cut *with* the grain of the wood, whilst using one spindle only. This is secured by the use of two friction discs, which drive the cutter-spindle, each of which causes the spindle to rotate in opposite directions. The action of these discs is instantly reversed by means of a lever under the immediate control of the operator. The top of the spindle carrying the cutter-block is turned slightly eccentric, allowing the block a small amount of play, thus withdrawing from the wood the cutter not in use. The main frame of the machine is circular, and cast in one piece. The table is fitted with fence, binding-rollers, and springs for "sticking" straight mouldings, and the machine is altogether exceedingly well designed. The patent four-cutter moulding-machine exhibited is a very complete tool, combining in a great degree the advantages of what is known as an outside cutter and also those of a centre-feed machine. The four cutter-spindles are driven from the main counter-shaft. The top cutter-block is arranged to rise and fall, and the side cutter-spindles to angle in either direction. The whole of the feed-rollers are geared, and the top rollers are made to overhang the main framing of the machine, and are easily removed, thus allowing conical rollers to be substituted, which are more suitable for feeding wood already sawn somewhat near the size of the required moulding. The rate of feed, which can be varied from 5 ft. to 50 ft. per minute, is regulated by an ingenious frictional disc arrangement. The cutters are very accessible for removal or sharpening. One of the band-saw machines exhibited is fitted with a special arrangement for canting the upper saw-pulley, for bevel sawing, thus leaving the table in a horizontal position, which is an advantage when working heavy timber. In the Industrial Annexe, adjoining the main building, Messrs. Western & Co. exhibit, in operation, a stone-moulding and planing machine. The cutters are fixed in a simple manner, in six tool-boxes, each pair of boxes being so set that the cutters, which can be arranged to any profile, operate on the stone in succession. The cutters are brought to the work by a hand-wheel and screw. After the moulding is roughed out, it is finished smooth by means of a scraper. The table carrying the cutters is arranged to cant, for working under cut mouldings.

In the same Annexe Messrs. Brunton & Trier show their patent stone-dressing machine in operation. This machine consists briefly of a large cast-iron hollow revolving disc, with suit-

able toothed gearing fitted in its interior for rotating a number of circular cutters made of chilled cast iron, which revolve on its exterior face near the periphery, forming a circle of some 3 ft. radius. The stone to be dressed is placed on a travelling-table with screw feed, the rate of which can be varied. The inventors claim that this machine is capable of dressing stone of any degree of hardness.

In the American Section the exhibits of wood-working machinery are confined to two houses, Messrs. J. A. Fay & Co., of Cincinnati, and Messrs. C. B. Rogers & Co., of Norwich, Connecticut. Messrs. Fay exhibit by far the greatest number of the few absolute novelties in the Exhibition. Foremost among these is a new patent dovetailing machine (Stengel's patent). It is simple in its construction, and will cut a dovetail in any kind of wood up to 1¼-in. thick and 14 in. wide, cutting both side and front at the same time. The cutter-spindles revolve at high speeds, and can be adjusted laterally to suit depth of cut. The cutters are simple, are turned in a lathe, and always sharpened from the centre; and provision is made to compensate for wear. A countershaft, fitted with cone pulleys, fixed underneath the machine drives the cutter-spindles. The cutter-spindle frames are stationary; the wood is fixed on a vertical and horizontal plate, and held fast by camb rollers; the male dovetail is cut on the horizontal table, and the female on the vertical table. A hand-lever moved up and down performs the operation, the slide moving forward at each alternate motion of the lever. The guides are so constructed that, after being started, it cannot be moved backwards at all, nor forwards more than the distance arranged. The failure of previous dovetailing machines worked with this class of cutters has arisen from the cutting-tools varying in their wear, thus causing the dovetails cut to vary in size, and be in consequence misfits. The exhibitors claim that any variation of this kind is, in their machine, easily adjusted. If it proves itself capable of standing constant and heavy work, it is a machine that is much needed, and will be of the utmost value to cabinetmakers and others. The patent combined hand and power feed surface planing machine shown by this firm is a valuable tool. The main frame of the machine is cast in one piece; the planing-bed consists of three separate tables,—the centre one has vertical adjustment to suit different thicknesses of timber; the end tables have both lateral and vertical adjustment. The self-acting feed consists of powerfully geared rollers, and when required to be in use, the tables are lowered below the cutter-block, and the wood fed under the cutters in the usual manner. When it is desired to plane by hand feed, the bonnet and pressure-bar are removed, and the end tables are raised above the cutter block; and these tables having lateral adjustment, the size of the opening over the block can be regulated. The bearings of the cutter-block are stationary. The block is fitted with three planing cutters, and is furnished with steel lips. The tables are so arranged that the cutting edges of the knives project slightly above their surface, and the wood is passed over them by hand, for the guiding of which a fence is provided. The machine will plane long or short stuff up to 24 in. wide from ⅛ in. in thickness, and will surface straight or tapering work, make glue joints, and will bevel, chamfer, &c. The timber can be fed from either end of the machine, and the depth of cut is regulated by a gauge and pointer. The cutter-block is speeded to make 4,000 revolutions per minute.

SOCIAL SCIENCE CONGRESS, CHELTENHAM.

The general proceedings having been reported in many quarters, we have preferred to give some of the papers in full, and shall print others next week.

Manchester Architectural Association. The third annual *conversazione* of this Association was held last week at the Memorial Hall, Albert-square. There was a large attendance of the members and their friends, and the company was received by Mr. T. Worthington, the president of the Society. The evening was devoted mainly to the inspection of an extensive and interesting collection of drawings by Manchester architects, and other works lent by members of the Association.

WOOD-CARVING IN BAVARIA.

It is quite difficult to appreciate the vast supply of wood which is obtainable in Bavaria. Any one who has not spent some little time among the Eastern Alps will scarcely, unless he has visited the backwoods of America, apprehend the extent of forests which cover the mountains of Bavaria. Naturally wood is much wasted; thus, in one length of fence sufficient timber is put to make three times the necessary protection, and it is used without stint as fuel and as building material. Considering, therefore, how cheap it is as a material, which may be used in all sorts of ways, it is obviously the right policy for the Government of Bavaria to give every kind of encouragement to the utilisation of it, for it is equally clear that, if it can be properly worked, very many articles may be made in the mountain villages of Bavaria which are of considerable value, or not a little sought after in more populous places. With this view, nine years ago,—that is in 1869,—three schools of carving in wood were founded,—"Schnitzschule," as they are called in Germany,—namely, at Regensburg, at Berchtesgaden, and at Partenkirchen. A short time ago we had the satisfaction of inspecting that at Partenkirchen, a picturesque and flourishing village at the foot of the wooded Eckenberg, and facing the grand mass of the Wetterstein group of the Alps, which rise in rugged precipices across the green level valley of the Loisach.

In this school there are about thirty-two pupils varying from thirteen to seventeen years of age, several of whom, by their delicate faces or by some physical infirmity, showed that they were unable to follow the laborious life of the ordinary Bavarian peasant. The school itself is situated a little outside the town, or rather village, and consists of two ordinary-looking white houses. In the one is the chief workshop, where the different pupils are assembled busy with various kinds of work; one at a photograph frame, another at a chair-back, and another, it may be, at a piece of a bookcase. The various articles are drawn by the several pupils from plaster models, which are constructed in the large room of the opposite house. This modelling-school, so to say, has to be worked in for two days each week by the pupils, who either construct new models in place of old ones, or make new ones after the designs of Herr Professor von Kramer, who is the intellectual spirit of the place. When an article has been made it is either sold at the shop in Partenkirchen, which is a branch of the school, or is forwarded to buyers in Munich or some other large town. Each pupil shares in the produce of his work in an ascending ratio; thus, the first year he would only receive about one-third of the price which each article he makes fetches. In the second year, when he is a more experienced workman, he will receive one-half the price; and, in the third year, when he has almost ceased to be a pupil, the whole amount is his own. But, as profit is a secondary consideration in the sale of the produce of the Schnitz-schule, it is not surprising that excellent examples of the art of wood-carving may be procured in Partenkirchen at a much lower rate than in Switzerland, or the parts of Germany more frequented by English and Americans. Every kind of work in wood is executed at the school, from tiny penholders costing a mark (1s.) each to oak bookcases worth 800 marks.

As we have already said, the Professor designs the various works, but whether it is advisable to leave this part of the work to one man may be doubted, though, considering the school is an academy of wood-carving, it would not be easy to give a wide scope to individual creations. But the designs for the more important works, such as bookcases and sideboards, were florid and heavy in character, of a late Italian style, and wanting, as it appeared to us, simplicity and beauty. Then, in the larger works, but not those of so important a character, there appeared to be a considerable sameness and want of boldness and strength of design; for the valleys and mountains of the Alps afford innumerable natural objects in their animals and their flora for abundant designs, without keeping the carver continually at work upon some such hackneyed design as a chamois or an acorn. For however much it may be necessary to cultivate technical execution, it is clear that the mind of the worker in the creation of designs should be vigorously cultivated, if Bavarian wood-carving is to take the place which is certainly open to it as a European industry. No more successful trade has been developed,—partly through the energy of the people themselves, and partly through the careful fostering in latter days of the Government of Baden, than that of the clockmakers of the Black Forest; for, from Mediæval times, they have been known throughout Europe for their skill and ingenuity, and their trade is at this moment more flourishing than ever. But both energy, in labouring and quickness of conception have characterised the ingenious natives of the Black Forest, and the same qualities must be developed among the pupils who leave the wood-carving schools of Bavaria, if their art is to become as important as it should. There is scope in the works which are and may be executed by the wood-workers of Bavaria for a never-ending ingenuity and skill, and it would be a benefit, not only to the highlanders of Bavaria themselves, but to Europe generally, if wood-carving should become a flourishing industry in the valleys of the Eastern Alps, for communication with all parts of Europe is now so easy that there is no reason why we in England should not have in our houses the use of the skill of the Bavarian woodworker, whose work can without difficulty be conveyed from one end of Europe to the other. There can be no doubt of the admirable manner in which many of the works sent out from the school at Partenkirchen are executed, but, speaking generally, wood-carving has not in times past taken any considerable hold of the peasants who dwell among the Alps of Bavaria, except for the purpose of the external decoration of their houses, and in some valleys for the carving of the door-panels, which at times show remarkable skill and taste. Nor as yet does there seem, in the Bavarian villages at least, to be any increasing trade in small articles, though naturally these are sent as much as possible to the large towns. But, be that as it may, no one can visit the Schnitz-schule at Partenkirchen, or Berchtesgaden, without admiring much of the work which may be seen there, nor without feeling a strong interest in and hope for the success of the beautiful and useful art of wood-carving in Bavaria.

THE ADDRESS ON HEALTH AT CHELTENHAM.

Mr. W. H. Michael, Q.C., as President of the Health Department at the Social Science Congress, delivered on Saturday last a comprehensive and valuable address. We print the concluding passages, which discuss some questions of current interest:—

The really difficult matter in any remodelling of our sanitary system is the question of the incidence and amount of rating. The consolidation of offices and officers, all serving one local authority, collecting rates for all purposes, and therefore making but one consolidated rate, collected at fixed periods, would of necessity ensure considerable economy, and in many places at present well governed under the old system, a very large saving would accrue; but in others now suffering from past neglect, it would inevitably follow that the necessity would arise for further taxation. The true principle, no doubt, in levying moneys for public local purposes is, that every one shall contribute in proportion as property is benefited by the money expended. But to determine this is a subtle indeterminate equation, which in many cases defies solution, and the more attention we give to the subject, the more shall we become convinced that all exemptions are vicious and misleading, and that the only safe and equitable guide is to take rateable value as the basis of rateability, and to treat every one alike. It is impossible to say where any person or property is not indirectly, if not directly, benefited by works executed in any district. In the works to be carried out by a Conservancy of Rivers Board, none would be more beneficial than those executed for the prevention of floods, a work which it would be impossible to carry out thoroughly and extensively without an entire representation of all the various interests concerned within the whole watershed area of a river. One short example of an apparent exemption may show how wrong it is to carry such exemptions into practice. Those persons owning property on the upland portions would strongly urge that they should not be rated, as they could derive no benefit from the works, but it is on account of the position of their property, and the relief they get by a rapid transmission

of the water which falls on their ground to the low-lying parts of the area, that the difficulties arise, to remove the liability of which the money has to be expended. Here, however, we are again met by obstacles interposed by our past legislation. The Public Health Act, 1848, and the Acts subsequently passed, have rated agricultural lands, market gardens, water, and railways at but one-fourth of their rateable value, and the great railway companies, wise in their generation, have been careful, whenever a special Act of Parliament has been passed for the improvement of a town or district, to get clauses inserted containing for their protection the same exemptions contained in the general Acts. But a closer examination of the subject will show that it is these great companies, lands yielding produce, and the like, which derive the greatest amount of benefit from the improvement of a district, and if they take their fair share of the benefit and profit, they should, in like manner, be prepared to bear their equal quota of the burdens which improvements entail.

Great apprehensions have been expressed both in and out of Parliament at the very large increase of indebtedness of local authorities, but a little examination will tend to dispel any fear on this account. The great body of the expenditure has been incurred in the purchase from companies of their gas and water undertakings, and for the money thus expended there is a commercial and adequate annual return, equal at least to the interest which has to be paid for the money borrowed, and in many cases bringing in a large amount of profit. Judging from the events of the last few years, the time does not appear to be far distant when every prosperous undertaking paying a good dividend on the money invested in the enterprise will have passed into the hands of the local authority of the district in which it is situated. This is hardly a consummation devoutly to be wished. Interference with private enterprise and stoppage of outlets for investment of small sums in secure ways is contrary to public policy, and every additional dealing with public moneys for trade purposes is to be regretted as a step in the wrong direction. Happily, the Legislature has, as yet, determinedly opposed any using of moneys raised by rates in competition with the action of trading companies. After very considerable inquiry and experience, I have not been able to satisfy myself that any advantage can accrue to communities from such transfers. What a local authority could or would do, would certainly be done in its own interest by a gas or water company having Parliamentary powers of supply, for the interests of the company and of the consumer, whether of gas or water, are indissolubly bound up together; and Parliament has surrounded these supplies with such safeguards as to make it less than ever desirable that so much of valuable private enterprise as is represented by these companies should be destroyed. The limitation of dividends, the sale of shares by auction, the adoption of a sliding-scale, in which dividends are directly proportionate to the cheapness of the supply, the care taken to ensure pure water and pure gas being provided by companies, and the means provided by the Legislature for enforcing this, with the other financial safeguards named, make it less than ever necessary to increase the number of these transfers. There is no further power of supply, no greater aid given to the local authority to enforce use of water, and, so far as I have been able to judge, no saving to the community. It is true that in the case of water there is the power in the local authority to take its mains, if necessary, through private lands, a privilege not granted to a company; but the occasions for the exercise of this power are so rare as to make it practically worthless. Of course, it will be argued that the great profits now earned by the companies are transferred to the consumers; but is this so? In the case of either gas or water supply, if compulsory power should be granted to acquire an undertaking,—and this, as yet, has only been done in one single case of a water company, and never in the case of gas,—Parliament will require the full value of the going concern to be paid for, estimated at twenty-five years' purchase, money being supposed to be worth 4 per cent., and the local authority will also be called on to pay a sum to represent prospective value and compulsory sale. When the sale is by agreement, the company fixes its own price; we may therefore assume the undertaking is not parted with below its real value. The only profit to be earned is that arising from the raising of new capital, and as now every gas undertaking must sell its shares in the open market for what they are worth, which, in every case, is close upon the current value of money, and all in premium obtained goes into the capital, without carrying a dividend, and by these means the price of the commodity sold is reduced, there is practically little advantage on this score. Moreover it cannot be right in principle to make large profits at the expense of one class of ratepayers for the benefit of others. When a sanitary authority becomes possessed of a gas undertaking, it can only rightly do so because it has to provide means of public lighting, certainly a very important element among sanitary and social requirements. Private lighting is to be considered under these circumstances as merely subsidiary to this public supply, and gas should be supplied at cost price to consumers who are ratepayers and who take their share of the risk as to the capital sum invested and have to pay their share of the principal and interest year by year. That is, the undertaking should be carried on to give cheap gas, not to make profits out of which to build town-halls or to provide street improvements. In another view the change of supply to the hands of public authorities is likely to be disadvantageous. At the present time effective checks to the supply of gas containing any impurity or of less than standard illuminating power, can be and are imposed by the Legislature. For every day in which such gas is supplied a fine is imposed which can be so arranged as to be a real payment out of the pockets of shareholders, it being levied and paid out of the dividend of the ensuing half-year, which is by so much diminished in amount. But it is useless on the part of ratepayers to seek to impose such fines when the undertaking is in the hands of the local authority. Public authorities as yet are only men, and possibly sometimes, when managing gas and water undertakings, may be found in default as to quantity and quality of supply of gas or water. To impose a fine is to punish the sufferer, as it is a payment which would have to be found out of rates paid by the complainant himself. With respect to water-rates, there is no object in charging more than the actual cost of repayment of the proportion of principal and interest required year by year, because all persons use, or ought to, or might use, the water supplied, and it matters little whether the money be raised by a rent charged for the supply or a rate charged over the whole district supplied. Where the supply is not universally used, it is often necessary that a rate in aid should be levied to make up the deficiency of the annual charges. There are no doubt in this way great inequalities, but it would be a national disaster in any case to attempt to pay for water like gas, according to the quantity supplied, for that would be to limit the use of a necessary to health, which every one interested in a community wishes should be as large as possible without incurring waste; and rateable value, in this case also must continue to be the true measurer of payment. Great relief has been given to local authorities by the extension of time for the repayment of the moneys borrowed for the purposes of gas and water supply, town improvements, and the like,—the money now being spread over a period of 70, 80, 90, or even 100 years, repayable by annual instalments or a sinking-fund. This enables many works to be executed which were before impossible, and without hardship will, at the end of the periods of payment, transfer to posterity gas undertakings, if gas be then used for lighting purposes, and water undertakings, if water be then a necessary of life, without burdens, and as a valuable property to the district. To acquire these undertakings when assented to by all parties interested, to acquire lands for sewage outfall purposes, to effectuate street improvements, to carry out the Artisans and Labourers' Dwellings Act, to provide further powers for such dwellings being erected, and generally for the execution of permanent works, greater facilities are required by local authorities, and an amendment of the provisional order system, now open to very grave objections, would inevitably follow an amendment of the administration of Public Health. Never before has so much public attention been directed to these subjects, never so largely as to-day have they received such careful and systematic inquiry, and never has progress been so great as at the present time. We may, then, with the greatest confidence, look forward to the future of our country. An improved standard of national health will lead to higher and better intellectual and moral development, for it is useless to cultivate the brain while the lungs are neglected, and physical improvement must precede mental advance. When our sympathies are enlisted for the poor, the suffering, and the destitute, when we devise better means for their aid, by living among them and showing them how best to obey the law, we elevate while we assist them. We may remember that our sympathy brings its own reward. We take the best step to diminish pauperism when we improve the cottage and surroundings of the labourer.

ON A CIRCULAR SYSTEM OF HOSPITAL WARDS.*

The chief aim of the successive efforts which have been made to improve the construction of hospitals has been the convenient realisation of certain well-understood sanitary conditions; but the views and requirements of modern hygienic science have advanced so rapidly, that principles and recommendations of comparatively recent date have often been speedily superseded. In the elaborate American Reports on Hospital Construction, edited by Joseph Billings for the building committee of the John Hopkins Hospital, in Baltimore (1876), probably the latest opinions on this subject are embodied; and to these, as fairly representative standards of authority, reference is made in the following remarks.

Besides the important questions to be determined in the erection of a hospital, as to the suitability of situation, soil, and aspect, it is evident that the essential considerations in the construction of the hospital itself are those which relate to frontage, exposure to air and light, the wall space and floor space allotted to each bed, the cubic ward space per patient, the number of patients under one roof, the ventilation and warming of the wards, the isolation of the wards from each other, the severance of the cooking-places, sculleries, bath-rooms, lavatories, and water-closets from the wards, and, lastly, the detachment of the administrative from the sick department.

In order to satisfy the conditions demanded under these several heads, the pavilion system has been devised, in which oblong wards are disposed in separate pavilions. The parallelograms formed by such wards are recommended to be from 24 ft. to 30 ft. in width, whilst their length should range from twice to four times their width.

What I now venture to propose is the adoption of a circular form for the wards, instead of that of a parallelogram. I do not find that the circular form has been employed in any existing hospital, nor am I aware that it has ever been suggested. Separate canvas tents or wooden huts have been arranged in circles as military field hospitals (Hammond Hospital, Chesapeake Bay), and an octagonal ward exists in the Bristol General Hospital; but I believe that the idea of a circular system of hospital wards is novel. I propose here to set forth its pretensions, and invite discussion concerning them.

(*a*) As regards freedom of frontage to all quarters of the compass, a circular ward would be uniformly free, except at some small part connecting it, by means of an open, or partially open, corridor with other circular wards, or with the necessary offices and administrative buildings.

(*b*) As regards the access of light and air, a circular ward cannot be surpassed. It is strongly insisted on by Professor Jones (Billings' Reports) that "an unlimited supply of air" to a ward "is the cardinal consideration"; and, again, it is elsewhere stated (Oppert), that "the worst wards are those where least air and light are provided," and that "a closed court with wards around it is the worst arrangement." A circular ward is obviously the inverse of this last-named plan; and, moreover, having no blank ends like an oblong ward, its uniformly rounded exterior, receding from all adjacent buildings, would receive light, air, and wind from every direction.

(*c*) The amount of wall space, floor space and cubic space, for each patient in a ward of

* From a paper by Mr. John Marshall, F.R.S.; with remarks and illustrations by Mr. Percival Gordon Smith, architect. Read at the Cheltenham Congress of the Social Science Association.

any shape, may of course be regulated by adapting the number of beds to the dimensions of any given ward; but it will be found that a circular ward, unless it be a small one, offers decided advantages in each of these respects. To illustrate this, I will take, as an example, a ward circular in shape, and having an internal diameter of 61 ft. Such a ward would give 191 linear feet 6 in. of internal wall surface, which would afford 8 ft. of wall space for each of twenty-four beds, and 9 ft. 6 in. for each of twenty beds. To obtain space for access to the ward, however, two beds must in either case be deducted, so that the accommodation would be reduced to twenty-two or to eighteen beds. Nevertheless, as regards available wall surface, the circular ward has the advantage; for to accommodate twenty-two beds in a parallelogram 30 ft. in width, giving to each bed a wall space of 8 ft., would require 236 ft. run of wall; whilst for eighteen beds, with 9 ft. 6 in. of wall space to each, 231 ft. of wall would be required, instead of 191 ft. 6 in., as in the proposed circular ward. This is explained by there being no available places for beds at the ends of an oblong ward.

The total floor space in a circular ward 61 ft. in diameter is 2,922 square feet, and this of course exceeds the space capable of being enclosed by an equal run of boundary wall arranged in any other regular or irregular figure. It would yield, for twenty-two beds, about 133 square feet of floor-space for each, and for eighteen beds, 162 superficial feet for each. The floor space per bed in any oblong pavilion ward 30 ft. wide, in which a wall-space of 8 ft. is allowed for each bed, is only 120 ft.; so that the advantage of the circle is clearly obvious. A few years since, 84 superficial feet were regarded as an ample allowance for each bed; but according to Stephen Smith (Billings' Reports), 120 square feet are now demanded, and for certain special hospitals a still larger space is desirable. The circular ward system affords the most economical mode of securing such a space, so far as linear extent of wall is concerned.

The amount of cubical air-space for each patient necessarily follows the same rule, and would be relatively greater in the circular than in the oblong ward here supposed. Thus, the oblong ward, with 120 square feet to each bed, would give 1,800 cubic feet per patient, for a height of 15 ft.; whilst the circular ward would afford, with the same height, either 1,995 cubic feet for each of twenty-two patients, or 2,443 cubic feet for each of eighteen patients. In special hospitals, any required amount of cubical air-space could of course be obtained, either by an increase of height beyond 15 ft., or by diminishing the number of beds. In reference to the last point, it may here be observed that all authorities agree that the number of patients in a pavilion ward should never exceed thirty. Stephen Smith (Billings' Reports) would restrict the number to twenty. The alternative numbers proposed in the above-described circular ward are eighteen or twenty-two.

(*d*) In reference to ventilation, I venture to suggest that a circular ward would offer highly favourable conditions for the complete attainment of this "cardinal consideration." In contact with the air on all sides, save for about one-twentieth part of its circumference, where it would be united with its corridor or offices, and having its windows disposed at regular intervals around it, it would form a sort of *facsimile* of the circular tent, so efficaciously sanitary, because so completely detached and aërated. Horizontal currents of air would sweep more readily and uniformly around the external surface of a circular than an oblong building. For the purpose of natural ventilation, every such horizontal movement of the outer air would become available, from whatsoever quarter or side it came. Proper openings systematically arranged in windows or walls, and acting as inlets or outlets as the case might be, would admit air or allow it to escape on every side, the fresh air being conducted beneath, above, or between the beds. For artificial ventilation, a shaft or shafts would find a suitable place in the centre of the ward, and therefore equidistant from the circumferential inlets; such shafts might be easily and conveniently made to work by some central heating apparatus, or by some central mechanical agency. The difficulties attendant upon ventilating a long ward would disappear. Sharp draughts across the ward, down draughts on the walls opposite and relatively near to open windows, deficiency of movement of the air with certain winds, and the unequal or opposing extracting power of two or more fireplaces, would not exist.

(*f*) The isolation of circular wards from each other, on the horizontal plane, would be accomplished readily by long and narrow connecting corridors, exposed to the air on both sides, and open or closed, as might be preferred in particular cases. The number and the mode of connexion of the circular wards themselves would also vary in different instances.

Mr. Gordon Smith, who supplied plans for comparison, in the course of his observations, says the site of a hospital involves other considerations than the mere position of the buildings upon a given area. Questions of aspect, of relation to air and sun, and also of neighbours' rights to light and air, have frequently to be solved by the architect. With ordinary longitudinal wards he is often tempted by considerations of site economy to place a ward-side full against a prevalent wind, of course making corresponding difficulty in equable ventilation; or to admit an excess of sunlight on one side while the other side gets none. With a circular ward there can be no questions of this sort. Subject to obvious ward management, the maximum possible equability is secured for the several parts of the ward; and wind from any single point of the compass, instead of ever impinging upon a single side, can only strike full face at some single point in the circumference. So again, as regards possible interference with adjacent rights, the circular form would appear certain to have advantages over the longitudinal form, since it would recede, not along a straight line, but along a curve from a point of closest proximity to other premises.

I do not think it would be either economical or convenient to make a circular ward for less than about eight beds. In such a ward it would probably be necessary to give each bed at least 10 ft. of wall space. This, with the requisite space for the entrance-doorway and the doorway to the w.c. projection, would require a diameter of 31 ft., giving a circumference of 97 ft.; which would afford 80 ft. for the eight beds and 17 ft. for the two doorways. Possibly a ward for six beds might be feasible,—the diameter being 25 ft. 6 in. would give a circumference of about 80 ft., and this would afford fully 60 ft. for the six beds. The average floor area per bed in the 31-ft. ward (for eight beds) would be 94 ft., and in the 25-ft. 6-in. ward (for six beds) only 85 ft. superficial. But to pass to the greater limit,—I understand this to be an affair not only of construction, but of what is best in ward administration, and I find authorities speaking of thirty beds as the number which had better not be exceeded in a single ward. I need, therefore, not refer to wards larger than this, but propose to examine simply the adaptability of a circular ward to thirty beds. Let 8 ft. be the amount of wall space which it is desired to assign to each bed, and it will be found that a diameter of 84 ft. would suffice to give this amount to each one of thirty beds, besides 24 ft. additional for the necessary doorways. With such a diameter there would be not only the thorough separation between the feet of opposite beds gained by the circular system, but a quite unnecessary amount of central space. This suggests to the architect the advantage of utilising the centre for purposes of support, and also for purposes of access upwards and downwards, and of subsidiary ventilation. I do not think there would be any objection to the middle of the wards being occupied by a block, say about 20 ft. diameter, containing a central air-shaft, surrounded by a staircase giving access to the roof. The floor area of such a ward would then be 5,541 ft.; less, for the central block (20 ft. diameter), 314 ft.; leaving the net area of ward 5,227 ft.; and this would give an average of 174 square feet of floor-space to each bed. But while I have taken eight beds and thirty beds as the minimum and maximum limits for circular wards, I should very much prefer the size and number of beds to which Professor Marshall has referred in the ward he has described.

Upon the question of cost of construction of circular ward blocks there is much to be said. The quantity of walling in a circular ward is (as has been shown by Professor Marshall) less than in a parallelogram-shaped ward for a corresponding number of beds; and although its circular form might perhaps make the actual cost of construction slightly more than that of straight walls, there would on the whole be a saving in this respect. The quantity of flooring in a circular ward being greater than in a corresponding parallelogram-shaped ward, would involve some additional cost; while the construction of the floor of a circular room of large diameter would be more complicated, and therefore somewhat more costly than that of an ordinarily-shaped ward. In the same way the cost of roofing a circular ward would be greater than that of the simple span roof of a parallelogram building. Wards of ordinary shape are usually about 24 ft. wide, rarely exceeding 30 ft. in width, and hence it is always possible to frame a roof or a floor of such bearing in a simple manner; but when the space to be roofed or floored is circular, and of considerable diameter, it would be expedient to introduce intermediate bearings. This might be done to a certain extent by utilising the central chimney-stack as a means of support; and in the case of the largest size circular wards, iron columns might be needed between the external wall and such central support. By the use of iron girders radiating either from the central chimney-stack or from columns as supports at one end to the external wall at the other end, with rolled iron joists and Dennet (concrete) arching between them, an excellent and incombustible floor would be formed, on which an oak or other wood surface could be provided.

THE NON-PROFESSIONAL STUDY OF ARCHITECTURE.

THERE is an old proverb that the cobbler should stick to his last, and it is one which, if followed universally, would save a great number of persons much annoyance and a large amount of money. In modern times, when every profession and occupation has become so technical in its character, it is the veriest folly for one ignorant of some particular trade or profession to endeavour to do some kind of work connected with it, instead of employing persons qualified by their education to undertake it thoroughly. It is constantly the case that those who are not lawyers seek to do lawyers' work, and thus lay up for themselves all sorts of future troubles; the amateur architect, too, is generally an equally unfortunate person.

But these facts are no argument against the unprofessional study of architecture, a study which is now, with some few exceptions, greatly and unwisely neglected. Let us consider why the study of architecture is one which is deserving of study by those who may have either plenty of leisure time, or who are of sufficient intelligence to seek for amusement in an interesting and useful pursuit. There is no object of greater importance than the buildings in which we live. In these days we, no doubt, hear a good deal more bout healthy houses, but we hear a great deal about food and exercise, and such like matters; but whilst every one seeks to know something about his own body, in some way or other, comparatively few persons seek to understand the construction of their own houses and the principles of utility or beauty which are applicable to them. One consequence of this is that there is much less of an incentive to architects to introduce improvements in the construction of houses, or to design beautiful edifices. We are not now speaking of the highest kind of architectural work, such as public offices, town-halls, and courts of law, which naturally cause architects to do all that their talent or education will enable them to perform. Nor, on the other hand, are we depreciating the way in which architects perform the work which they have to do: all we are pointing out is that there is no incentive to improve work when those for whom it is supplied have none of the training which will enable them to appreciate better work. Architecture is an essentially progressive profession, but the rate of its progression depends to a large extent upon the pressure from outside, and to throw pearls before swine is an occupation which is both a waste of time and money, and a singularly disheartening performance into the bargain. Again, there are good and bad men in every profession, but the good men are much sooner recognised and much more highly appreciated by an instructed than by an ignorant public. Again, there is also this drawback to the neglect of architectural studies as at all a general pursuit, viz., that when there is an exception to the rule, the exception may be a most superficial one, but yet the person who forms it will almost

inevitably consider himself equal if not superior to a Scott or a Waterhouse. There must certainly be large numbers of our readers who, in the course of their professional experience, have come across the kind of person we mean, who, on a committee of selection for a church or a municipal building, lays down all the laws of taste, is absolutely domineering with his superficial but superior knowledge, which a very slight amount of instruction on the part of the other laymen would quickly cause to subside, and thus permit the professional architect a fair and impartial hearing.

But there is also a stronger ground on which the non-professional study of architecture may be recommended. Indeed, it is the strongest ground for such study, because in all matters of difficulty or size the professional architect should be always employed. But modern Europe is a continent of cities, and our modern days are days of unlimited travelling. It is true that Switzerland has been called by a well-known writer "the playground of Europe," but, as a matter of fact, the number of tourists who spend their time in cities is greater than those who seek it exclusively in the valleys or on the heights of the Alps. To put this in plainer language, we may say that the aggregate amount of time spent by the whole body of tourists in the course of the year in viewing towns is considerably greater than the amount which is passed in the country. Consider those who flock to Rome and the other cities of Italy in the winter, and those who view churches and cathedrals in the towns of France and Germany, and also those who spend a few summer months in Switzerland or the Tyrol, and we venture to think that our assertion, broadly speaking, is true.

But how much time have one-tenth of those who spend hours among the churches of Rouen, gazing at the quaint houses of Nuremberg, or wandering among the palaces of Venice, given previously to the study of architecture? For the study of architecture has a threefold consequence. It trains the eye so that the beauties of a building are both more quickly seized and more keenly appreciated. The unsophisticated rustic feels little or no pleasure in the mellow splendour of the woods in autumn; the eye of the artist, cultured by the study of colour, rejoices in the varying tints of the foliage, and perceives charms almost impossible of appreciation by the ignorant peasant. It is just the same with the study of architecture; because by the study of architecture we do not mean simply a perusal of Rickman or Parker, from one end to the other, as of Macaulay or Grote; but also an exemplification of the contents of the pages by the study of illustrations and actual buildings. Again, there is the historical aspect of the question. The study of architecture necessarily must be pursued historically; that is, as regards the history of buildings and the general history of which they form a part. Now, much of the interest to be found in many buildings arises from their relation to the times in which they were erected, to other buildings differing or resembling them in character, and lastly, from their relation to personages or events of historical interest. What a vista of the past does Oxford open before us! The Saxon Alfred and the lordly Wolsey appear before us; what stirring events and what changing aspects of our country are written in the stones of that "fair city." The biography of great men has been said to form history; but it is equally true that the stones of our towns, our castles, and our churches, embrace both the history of our country and the lives of our greatest men. But the actual history of buildings is that which has the most strict relation with the study of architecture, and we have no hesitation in saying that those who have once commenced the study will find their field enlarging itself every day that they obtain some new information.

It is quite certain, too, that nine-tenths of those who gaze now at celebrated buildings do not appreciate them as buildings, and are oftentimes exceedingly wearied by such observation. An elementary study of architecture would throw new interest into foreign tours, and render attractive many places at home which have hitherto been wearisome. Indeed, it seems difficult to overrate the advantages, purely pleasurable, wholly without drawback, which may be obtained by the non-professional study of architecture.

But, except by some few persons, and by those who intend to make it their profession, this tudy is wholly neglected. Thus we imbue our boys from their first entry at a public school to the last day on which they reside at a university with classical knowledge. But whilst they are filled to overflowing with the literature and the history of the Greeks and Romans, is a single thought, except in the most cursory fashion, given to the architecture of those ancient times, to its character, its relation to the people by whom it was used, to its consequences for future generations? It is quite neglected; there is no attempt made to give a knowledge of its principles; there is, in fact, in most of our educational centres, no one even who is capable of giving that knowledge among the tutorial staff. We lecture our students upon the Mediæval history of England, but we give little or no attention to some of the chief achievements of our ancestors, in the shape of buildings which exist to this day, when the political or social systems, — those little systems which "have their day and cease to be,"—are as much things of the past as the men who moved within them. Thus any person who has arrived at years of discretion, with professional duties, and no intention of becoming an architect, but who wishes, for his own profit and pleasure, to give some study to the subject, must begin from the very commencement, without any directing influence gained in his educational days. But, except by way of books, there are, even for those of maturer years, who are not architects by profession, hardly any opportunities of gaining this knowledge. Of course, there are societies for those who have attained a certain proficiency in, and knowledge of, the subject. But do we ever hear of popular architectural lectures, as we do of popular science lectures? Popular science is very desirable, but popular architectural lectures would give much pleasure and more practical profit. Our space will not permit us to follow out these observations to a greater length, and, true as they are, they are necessarily rather suggestive than exhaustive. They will, however, put before our readers three positions, which are,—that the non-professional study of architecture is desirable from the point of view of utility, and from that of pleasure, and that at the present time any non-professional study is almost wholly neglected, and that, speaking generally, there are few opportunities, if any, available for such study.

OUR COLONIAL PROGRESS.

The progress of our colonies is a subject which at the present time is of the utmost importance to Great Britain, for whilst in some directions the trade we do with foreign nations is being seriously limited, our colonial trade exhibits at the present time a considerable and most gratifying improvement. In part this may be made apparent by the increased shipments through the stimulus given by lower prices, but unquestionably the source is traceable to the improvement in the financial condition of many of our colonies, and the development of their material resources. The publication, therefore, of the official "Statistical Abstract" for the "Colonial and other Possessions of the United Kingdom" comes in most opportunely,—presenting as it does reliable facts showing the position and shadowing the prospects of some of our most important possessions. The first of its tables is that of population, which is incomplete; but it may be remarked that one of the tables presented,—that of Australia,—shows a very considerable increase,—from 1,924,770 in 1871 to 2,401,715 in 1876. The table of the gross public revenue shows a very material and general advance,—that of India having added 700,000*l.* to the revenue of 1875; and Australia having added to its 14,000,000*l.* nearly 2,000,000*l.*, —the most of the increase having accrued in New South Wales and New Zealand. Natal shows a fair enlargement, but Canada is stationary of late years; the Cape of Good Hope is increased in a good degree; and the only other noteworthy change is the continuance of the increase of Malta. But these increases are almost invariably accompanied by enlarged public expenditure,—at least in equal ratio. The public debt of India is swollen much of late years; that of Australia has increased from 41,000,000*l.* to 59,380,000*l.* in five years; and that of the Dominion of Canada from 17,120,000*l.* to 25,900,000*l.* in the same time.

The shipping trade, as marked by entrances and clearances of vessels, has been enlarged generally, almost universally of late years, and, except in the case of the West Indian islands, an increasing proportion is in British vessels, in more than one instance the tonnage of foreign vessels entering and clearing being less now than it was four years ago, although the totals are increased. The value of the total imports shows in several instances a falling off in the last two or three years, due to the lower prices for goods that have prevailed, and the same declension in value is at times noticeable in the exports from the colonies to Great Britain. Coming to the tables devoted to special industries, it is noticeable that the quantity of wool sent out by the colonies is very materially more—the total having grown from 126,945,229 lb. in 1862 to 412,934,878 lb. in 1876. This wonderful increase arises largely from India, which has doubled its contribution, but chiefly from Australia, which sends fourfold now what it did fifteen years ago, and the increase is further traceable in detail in considerable degree to New South Wales. Of raw sugar from the chief British possessions there were sent out in 1862 about 7,300,000 cwt., and in 1876 the quantity had only risen to 7,877,955 cwt.

In imports into the colonies, as far as India is concerned, she has taken much less railway materials, sugar, and tea; and much more coal and coke, provisions, and cotton manufactures; whilst she has sent out greater quantities, specially of coffee, grain, raw jute, opium, and sugar. The trade of Australia has shown a tolerably general increase, both in imports and exports, but New Zealand shows a marked fall in the value of her imports of live stock. Canada had last year an increase, especially in the grain imported, and in the exportation of preserved meats, but in none of the others is there special call for remark. It is very noticeable that there has been an increase in the banking facilities, and in the banking business done; the total liabilities of the banks in New South Wales, for instance, have risen from 11,500,000*l.* to 16,250,000*l.* in four years, and those of Queensland in an even larger degree,—the assets in each case having increased more than equally.

In the length of railways, there has been a considerable addition in the half-dozen years over which the table extends, — in Australia, in a shorter period to a duplicating extent,—the mileage having risen from 1,499 in 1873 to 2,782 in 1876. Natal still possesses its five miles; the Cape of Good Hope has raised its mileage from 64 to 208 in four years, and there is a considerable addition to that of the dominion of Canada. The statistics in relation to land are not so interesting, nor do they show so much progress, except that there is very much more under wheat in Australia than there was. The live cattle figures are confined to the Australian colonies, and it appears that the number of horses is much greater there than it was, whilst the horned cattle have risen in number from 4,035,839 to 7,232,132 in ten years, and the larger number of sheep has been increased in a similar proportion, as has also that of pigs. As to population statistics, the births in Australia rose from 52,349 in 1861 to 85,429 in 1876, but the proportion to the population was less. The deaths were considerably more actually, but relatively to the population they were about the same; whilst the marriages increased numerically, but decreased in the proportion. A very interesting and useful meteorological table follows, but it is not of a nature to bear condensing. One tabulating the rainfall is next given, from which it seems that in the latest year given the rainfall was greatest at Hong Kong, and least in South Australia. A series of tables of the import and export duties levied on various articles in the different colonies concludes the volume, and they show that whatever our colonies have gained, they yet need in many instances to take to heart the lessons of free trade which the mother country has set before them. Apart from this, however, there is in the volume, brought down to the latest date for which statistics could be tabulated for distant parts, a very cheering testimony to the growth of our colonial empire, and material which lays the groundwork for hopes of the future. It is at once evident from many of the facts which have been summarised that there has now been a very considerable, if not full, recovery from the depression which in some of our colonies preceded and contributed to the depression at home; and though it may be some time before we have authentic figures showing it, there is no doubt that that process of recuperation has gone on during the present year in a quicker ratio, helped by generally plentiful harvests.

THE CHRISTOPHER COLUMBUS MONUMENT, MEXICO.——M. CHARLES CORDIER, SCULPTOR.
Presented to the City of Mexico by Don Antonio Escandon.

The effect is already seen in part in increased trade with our colonies this year, but it will be much more evident in the future. More and more England is trading with her colonies to mutual benefit, and the growth of that trade, and the intercommunication and better understanding resultant, are especially to be desired. There is need, as has been pointed out, of an application of the principles of free trade, and this would conduce to the end aimed at in no small degree.

MONUMENT TO CHRISTOPHER COLUMBUS, MEXICO.

THE beautiful capital of the Mexican Republic numbers amongst its many attractions a handsome monument to Christopher Columbus, of which we give an illustration in this number.

The origin of this monument may be stated in a few words. In 1872, when in Paris, Señor Antonio Escandon, a rich Mexican, was struck with the equestrian statue of Ibrahim Pasha, designed and executed by M. Charles Cordier, and placed by him in front of the Palais de l'Industrie. He suggested to the sculptor the idea of erecting a monument to the immortal Genoese in the city of Mexico. Within the space of ten days, M. Cordier presented a model, and Señor Escandon, who approved the design, placed at the disposal of the artist the respectable sum of 8,000*l.*, in order to supply funds for the necessary works. The monument was unveiled at the latter end of 1875.

The total height of the monument is 45 ft. The statue of the navigator is 12 ft. in height. He is represented in the attitude of raising the veil which enshrouds half the globe, at the same time directing his gaze to heaven, as an action of gratitude for the happy realisation of his great undertaking. Four statues in bronze, and measuring 10 ft. in height, one of which represents Las Casas, the apostle of the American Indians, are placed at the corners of the monument. In the front of the basement supporting these statues is placed the votive inscription, in a framework, also in bronze, while behind is reproduced, literally, a letter written by Columbus to Isabella, in the centre of a rich corona of palm and laurel leaves. The whole architectural arrangement was designed and executed under the direction of M. Rossigneux.

It may be remembered that in the same year (1875) another handsome monument in honour of Columbus, executed in white Milan marble, and erected at the expense of the Italian residents in the State of Pennsylvania, was unveiled in Fairmount Park, Philadelphia.

THE FRENCH GALLERY.

THERE must certainly be a fall in the prestige of the gallery in Pall-mall, or some exceptional difficulty in getting pictures together, to account for the presence of some of the works to be found in the Twenty-sixth Annual Exhibition of the Works of British and Foreign Artists, opened this week. Some little time since no one would have believed that works so much below the mark would have been placed in this usually very select collection, as are some of those now to be seen there. It would hardly serve any purpose to go through the invidious task of naming them particularly. We can only regret the fact that Mr. Wallis's gallery seems to be no longer a place of escape from commonplace and mediocre work.

There is, however, one picture which would be worth going in to see, if all the other works in the room were "pot-boilers." This is De Neuville's latest battle-piece, the scene in the street at Le Bourget after a gallant remnant of defenders who had taken up a final stand in the village church had been with difficulty overpowered and forced to surrender. In the absolute reality of the scene, in the mingling of the prose with the heroism of war, we hardly remember to have seen anything like this; and remarkable as have been the painter's previous achievements of this class, we may say that here he has fairly out-done himself. The picture shows in the foreground the open space in front of the church, which is to the spectator's left, and we look beyond, on the right, down the principal street of the place. The windows of the houses near the church are filled with German soldiers who had taken up that position in order to fire through the windows of the church on its defenders inside, and whe now crowd to the window-sill to see the remnant of the French party come out as prisoners: one of them, a typical, fat, round-faced German lout, sits with one leg hanging outside the window, and surveys his late adversaries with an air of impudent and coarse triumph. Below, a group is formed on each side of the church-door, conspicuous among which is the captain of the French party, standing swordless and with a pathetic air of resignation to the inevitable. The painter has, with a pardonable patriotism, made a fine point of contrast between this heroic though sad and worn figure (who, like two other of the French officers, is a portrait) and the beefy-looking Prussian soldier, who stands by, holding the sword of one of the prisoners. Through the church-door a young French officer, seriously wounded, is carried out on a chair by two of his late foes, apparently fainting, and looked upon with sympathising interest by one or two of the Germans nearest the door. On the right the fieldpiece with which the church-door has been blown in, its muzzle blackened by the recent firing, is wheeled back again into the centre of the street, two men putting their shoulders to the wheels to help it on to the crown of the roadway; the artillery team are in progress down the street; the driver of the leading pair half turns on his horse to check the others from driving right over the body of a French soldier, who lies slain or wounded in the middle of the road, whom they can afford to think of now that the fight is over. On the other side of the gun a German officer gives an order quietly and is answered by the rider of one of the horses, who touches his helmet in as orderly a manner as if on parade. Not a detail in the realisation of the scene is forgotten; yet there is no exaggerated finish; the whole is painted in a thoroughly broad and artist-like style. If any one wishes to feel as if he had really been in a sharp skirmish, and to realise the feelings of victors and vanquished in a thoroughly military group, let him go and look at M. de Neuville's picture.

The opposite picture to this, Mr. Muller's "Encampment in the Desert" (150) is a large group of Arabs, we suppose (but they are darker-skinned people than we generally suppose Arabs to be), with two or three camels; very forcibly drawn, the camels especially, but heavily painted and deficient in lighting, so that the various figures hardly detach themselves sufficiently from the mass. The third centre place is occupied by a picture by Mr. Burgess representing a benign priest examining some Spanish girls in the "Church Catechism" (19); the picture hardly calls for remark. In the fourth place of honour is a very Creswicky Creswick, put there one knows not why, in an exhibition professedly of works of living artists. We may notice, too, that Gerome's little picture of "An Eastern Woman" was hung in the gallery, and in nearly the same position, not very long ago. In short, the collection seems to have been got together as it could be, in a very miscellaneous kind of way.

Among things that are, however, worth attention, may be mentioned the rather large work of Miss Hilda Montalba, the best thing we have yet seen from this very clever lady, "The Return from the Rialto" (161), a boat with two or three Italian peasants gliding over a broad lagune at evening; the picture is not only very broad and calm in feeling as a landscape, but in the combined character of the figures and scene there is a semi-pathetic expression which makes one think of Jules Breton. Miss Hilda Montalba is less of a mannerist than her sister, whose works had the start of her, but whom she seems likely, judging from this picture, to surpass. Herr Spring's picture of the "Gamblers" (105) is much less disagreeable, but also less powerful than one or two other rather similar subjects we have seen here from his hand. Exactly the contrary may be said of Herr Kauffmann's "An Intermezzo," wonderfully clever, but repulsive to a degree. Ostade's boors are refined creatures compared with this painter's specimens of human degradation. A bit of low life of a more pleasing type is pleasantly given in M. Moreau's "Sunday Morning" (11); M. Jimenez is clever in his representation of "An Expert at Pen-making" (3), which, however, would never have been painted but for Meissonier, just as M. Sadee's "Gossip on the Seashore" (29) would never have been painted but for Israels. MM. Daverger, Pasini, Chevilliard, and one or two other usual contributors, are fairly represented. Mr. Weber's "Fishing off Calais" (10) is a fine forcible sea-painting, better than the larger work by the same artist; M. Ruinart's "Study in the Port of Naples" (14) is a masterly little thing, and two or three very diminutive landscapes by Herr Heffner are worth notice.

CHIMNEY-PIECES.

NUTFIELD PRIORY, RED HILL, SURREY.

WE published a short time ago a view and plan of this mansion, the residence of Mr. Joshua Fielden, M.P., when a detailed description of the buildings was given.

The illustration we now add shows the chimney-piece and surmounting glass in the drawing-room, with a profile and plans above and below the shelf. The frame to the silvered glass is richly carved and inlaid with different woods. The marble work below is also inlaid, various coloured materials being used.

The chimney-piece and glass with its enclosure in Mrs. Fielden's room are also shown. Several descriptions of marble have been employed for these, which, as will be seen, are also enriched by carving and inlay.

The profile and plans of this, above and below the shelf, are also given. The whole of the work was carried out by Messrs. William Cubitt & Co., from the designs and under the superintendence of Mr. John Gibson, of Westminster.

Southend-on-Sea.—It is proposed to erect an aquarium here. The site will be close to high-water mark. Mr. W. Paice is the architect.

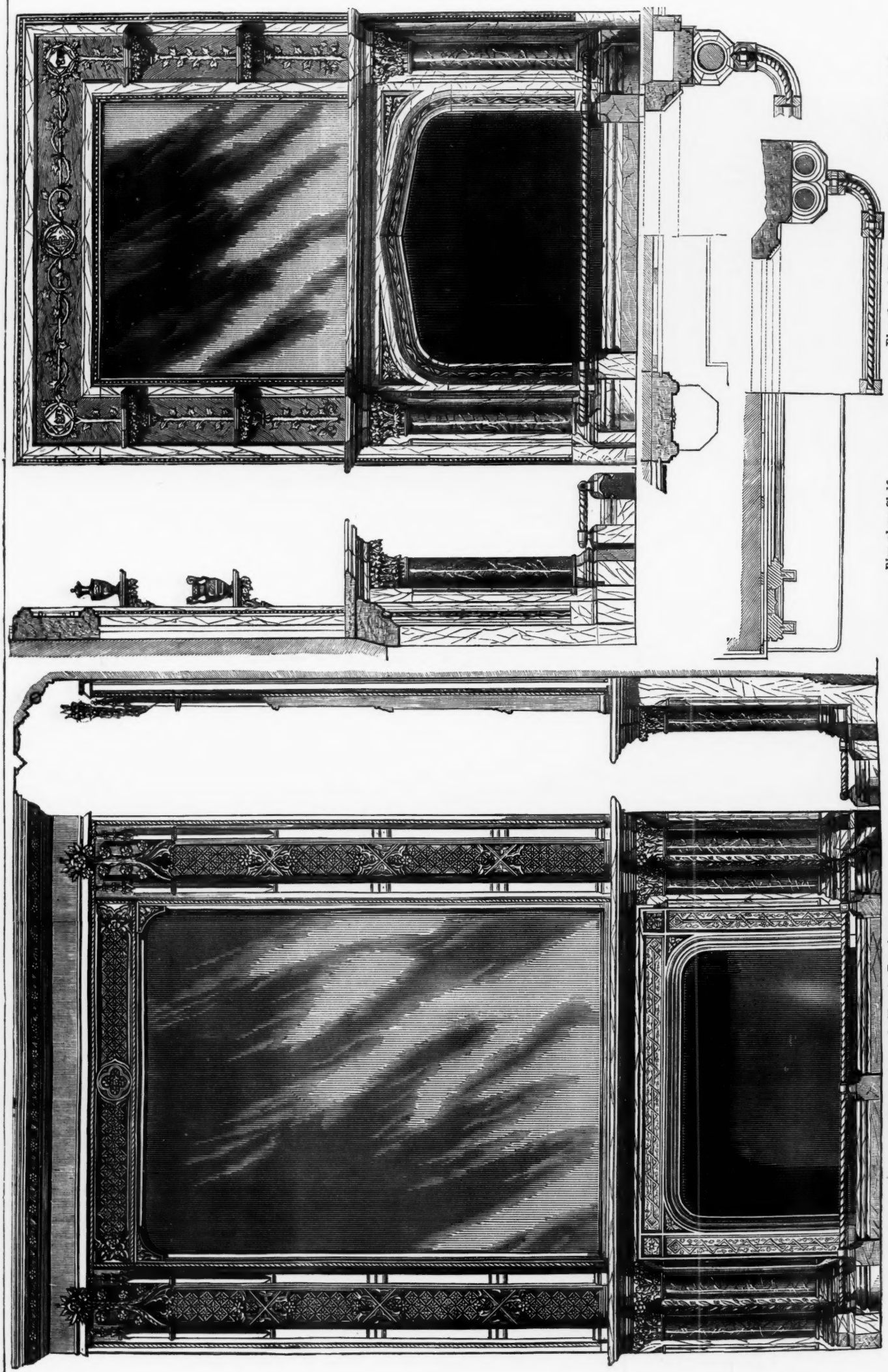
REREDOS, TRINITY CHURCH, NEW YORK.

THIS reredos has been erected as a memorial of the late Mr. William B. Astor by his two sons in Trinity Church. It occupies nearly the whole width (35 ft.) of the chancel, and is carried up as high as the sill of the large seven-light window, which is about 20 ft. from the floor.

The communion-table is 11 ft. long, and is constructed of white statuary marble, with shafts of Lisbon red marble supporting capitals carved in natural foliage dividing the front and side into panels. In the centre panel, which is carved with passion-flowers, is a Maltese cross in mosaic, set with cameos, a head of Our Lord being in the centre, and the symbols of the Evangelists at the extremities of the four arms; this panel is flanked by two kneeling angels, the one in adoration and the other in prayer. The other panels in front, which are carved with ears of wheat, are also in mosaic, and contain the "Pelican" and the "Agnus Dei," and those at the side the sacred monograms. The white marble slab is set on a cornice composed of grape-vines, and is inlaid with five crosses of red marble. The super-altar is of red Lisbon marble, with the words "Holy, Holy, Holy," inlaid in mosaics on its face, and its shelf is continued on each side the whole length of the reredos for the reception of flowers at festivals.

The reredos is in the Perpendicular style, so as to be in keeping with that of the church. It is constructed of Caen stone, elaborately carved, a great deal of the carving being after natural foliage. In the lower portion on each side of the altar are three square panels filled with coloured mosaics in geometrical patterns. Above the line of the super-altar are seven panels of white marble, sculptured in alto-relievo, representing incidents in the life of our Blessed Lord immediately preceding and subsequent to the Last Supper; this is modelled after the celebrated picture by Leonardo da Vinci, and fills the centre panel over the altar; underneath this appears in raised letters the words, "Having loved His own which were in the world, He loved them unto the end." On the right of this panel, under a canopied niche, stands a white marble statuette of St. Raphael with a flaming sword in his hand, and on the left St. Gabriel holding a bunch of lilies and a scroll. On the extreme right of the reredos, in the other panels:—(1) St. Mary Magdalene pouring ointment on the feet of our Lord, inscribed underneath with the words, "She hath done what she could"; (2) The Triumphal Entry into Jerusalem, with the words, "Hosanna to the son of David"; (3) Our Lord washing the disciples' feet, with "I am among you as He that serveth." On the left, in continuation, is:—(5) The Agony in the Garden, with the words, "On Him was laid the iniquity of us all"; (6) The Betrayal, inscribed with, "This is your hour and the power of darkness"; and (7) Our Lord before Pilate, who is in the act of saying, "I find no fault in this man."

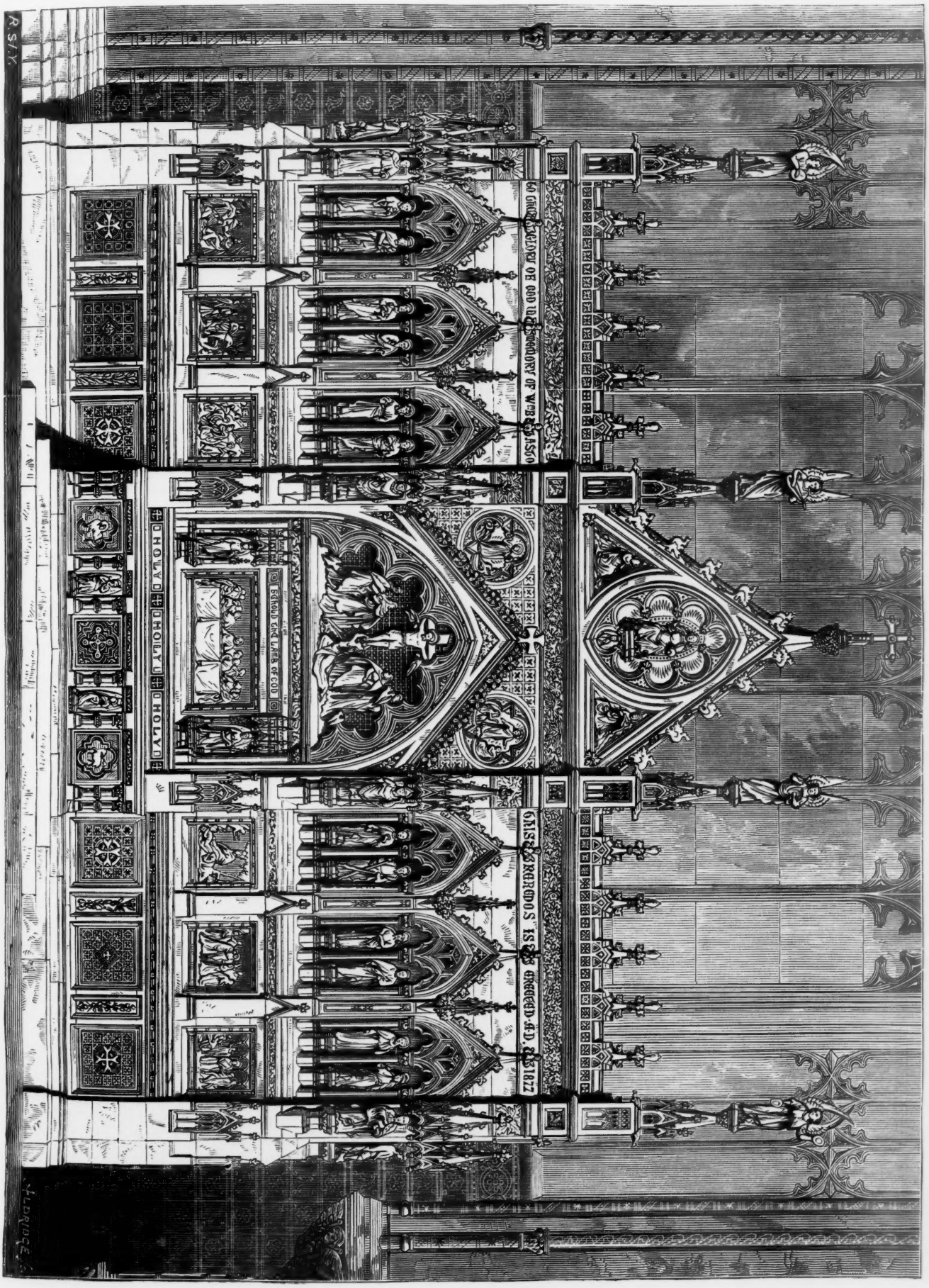
The reredos is divided into three bays by buttresses, which contain under canopies on their face, four Doctors of the Church:—(1) St. Jerome, represented in the act of translating the Bible, accompanied by the lion endeavouring to show his gratitude for taking the thorn out of his foot; (2) St. Ambrose, in bishop's costume, in the attitude of delivering a discourse, with the beehive, his characteristic emblem, on his left; (3) St. Augustine, in same costume as St. Ambrose, in the act of giving the benediction; and (4) St. Gregory, in the act of writing his Homilies. In the centre bay, under a large multifoiled arch, forming a baldachino, is represented the Crucifixion in high relief. On the right of the Cross stand SS. John and Mary the mother of our Lord; St. Mary Magdalene kneeling embraces the feet which brought such mercy to her; and on the left are the other Mary and the Centurion. This subject is supported on an elaborately-carved cornice composed of passion-flowers, and underneath are the words, "Behold the Lamb of God." Ranged on either side in the two other bays are statuettes of the Twelve Apostles, 2 ft. 6 in. high, each with his characteristic attribute:—(1) St. Jude carrying a book and a club, the weapon with which he was killed; (2) St. Bartholomew carrying a large knife, the instrument of his martyrdom; (3) St. Thomas with a builder's rule; (4) St. Matthew, who was a tax-gatherer, with a money-box in his left hand, indicative of his calling; (5) St. John holding a chalice with a serpent issuing from it; (6) St. James Minor, first Bishop of Jerusalem, with



Plan above Shelf. *Plan through Columns.* *(Drawing-room.)*

Chimneypiece and Glass in Drawing-room.

CHIMNEY PIECES, NUTFIELD PRIORY, REDHILL, SURREY: THE RESIDENCE OF MR. JOSHUA FIELDEN, M.P.


R.S.I.Y.
GLORIA IN EXCELSIS DEO
HOLY HOLY HOLY
BEHOLD THE LAMB OF GOD
GLORIA PATRI ET FILIO ET SPIRITUI SANCTO
SICUT ERAT IN PRINCIPIO ET NUNC ET SEMPER ET IN SECULA SECULORUM AMEN
"THIS REREDOS IS ERECTED A.D. 1877"
J. LEDRUCE

REREDOS, TRINITY CHURCH, NEW YORK, U.S.—Mr. F. Clarke Withers, Architect.

pen and book, and the fuller's club, the instrument with which he was beaten to death; (7) St. Peter with the keys in his right hand and a book in his left; (8) St. Andrew with a transverse cross, similar in shape to that on which he was crucified; (9) St. Simon with a saw, the instrument with which he was sawn asunder; (10) St. Matthias with a book, and an axe, as he was beheaded for his preaching; (11) St. Philip holding a tall staff with a Latin cross at the top; (12) St. James Major bearing a pilgrim's staff, to which a wallet is suspended, and with a scallop-shell on his flapped hat.

These statuettes are placed in niches, with traceried heads, carried by polished Bay of Fundy red granite shafts, with the background carved in diaper and gilded. On the extreme ends of this line, facing north and south, are the figures of SS. Michael and George, under canopies similar to those over the doctors.

In the centre bay, above the Crucifixion, are sculptured in panels set in diaper work, the Resurrection and the Ascension. In the gablet which surmounts it, and inclosed in a vesica piscis, is represented Our Lord in His Majesty, holding the globe in his left hand, and blessing with his right; and on either side, and filling the spandrels, are sculptured angels kneeling in adoration. Underneath the main cornice of the side bays, and forming part of it, is inscribed in raised letters, "To the Glory of God, in memory of Wm. B. Astor, this Reredos is erected A.D. 1877."

Angels, playing on musical instruments, emblematic of the Church triumphant, crown the four buttresses.

The statuary was executed by Mr. Robert Smith, of Lambeth-road, London; the mosaics by Mr. Daniel Bell, also of London; and the whole of the carving, Caen stonework of reredos, and marble work of altar, including the setting up, has been done by Messrs. Ellin & Kitson, of New York. Mr. Frederick Clarke Withers was the architect.

POTTERY IN THE EAST, AND ASIATIC ARTIST-WORKMEN.

It would seem to be now all but certain that foreign labour,—artistic and skilled labour,—is to be imported systematically into this country, as well as into other communities of English growth, wherein it has already obtained a somewhat firm foothold. Whatever may be thought of this as a development of "Free Trade," and whatever its ultimate effect on the "labour market" may be, it is quite certain that the subject in itself, and as an experimental effort at a something new, is of the very utmost interest and importance. We know as it is, indeed, but little of the capacities of other and distant nationalities, or of their special modes of work, in detail. We see only as in a glass darkly final and accomplished results, better it may be, or not so good as our own. Not only do we need to know the full value of such results, but we need to know as well how and in what special way they have been produced,—under circumstances so different from those all round and about us. And this not only in the actual present, but in the past. Let any one sufficiently interested but go into the Antiquity Galleries of the British Museum, and ask himself how and by what sort of workman or workmen the hieroglyphics on the Egyptian monuments were cut, particularly those of which casts in plaster have but recently been open to public view, and he will soon find a not a little puzzling problem before him, simple as it may seem to be.

It is quite certain that, whatever the special method of work might then have been, it was, and needs must have been, different from ours now-a-days all about us, and by our art-workmen. Much attention is just now being excited by this question of "art-labour," and various causes have been cited to account for our present deficiencies. Want of due study, trade unions, the existence of which are thought by many to be so prejudicial, intemperance, and thoughtless extravagance, idleness, and not a few other bad and sombre influences; and comparisons are at times drawn between the English and the foreign workman, not a little to the disadvantage of John Bull. We cannot know too much, and the coming here of workmen from Japan, distant as that place is, and mysterious as it is, and has been, must needs throw no small light on the "labour question," as to how work is there done, the *tools* in use, and the whole of the *modus operandi*. A right curious meeting together of two things so opposite,—our own methodised and mechanical modes of work, rivalling machinery itself; and one in which art feeling more or less *must* form an element, as each man, as it would seem, works by himself, and exercises *thought*, while in the act of working. What sort of thought, asks the reader, and how far does it extend? and where does it begin? This we may perhaps get a glimpse of.

But leaving Japan for the present, let us glance for a moment at another, and all but as distant and strange, a place.

Samarkand, far off as it is, and beyond all school influences, is famous for its pottery, and supplies not only itself, but the surrounding country and villages more or less with "clay" ware; the traders in it making annual tours through the country, as do the Samarkand artists themselves, who, working in the clay as found on the spot where they happen to be at the time, there do, which is somewhat curious, what is wanted of them, being all ready prepared with their "designs" and patterns in their heads, and working from them as from a pattern-book! What a curious, and Old World-famous process and mode of work! Artist-workmen these, if there be anywhere any such. The antique Etruscan worked in this same way, so that it is after all nothing new; but it typifies a mode of work the very opposite of our own. What would our labour unions say to it? What would the great capitalist pottery manufacturer think of a workman who should present himself at the factory-door not only with tools in his hand, and a strong and willing arm, and flexible fingers, but with "designs," not on paper by another hand, but with these in his head and in his mind's eye? Here, this is simply impossible, and well-nigh inconceivable, in spite of our multitude of "schools" and art-teaching appliances; but in distant Samarkand, at the extremities of Asia, it is an actuality, and as real as it must have been in old Etruria.

The shops of the dealers in china and earthenware are everywhere, all the world over, attractive, and here more especially, from the character displayed, the work being hand-made, and every piece different in design. Those, therefore, fond of pottery may here revel as in a curiosity-shop. The ware for the most part is coarse, and is more often than not rudely, and as it were carelessly, made; but that is made up for by the novelty and freshness and individuality displayed in it; and more than all,—and this is indeed the real secret,—by the evidences inherent in it of artistic hand-work, and ever-present mental watchfulness. In harmony of colour, where there are designs and patterns, whatever such designs may be, and in that instinctive balancing and blending of tints, it is equally noteworthy; but, perhaps in more than all, is it remarkable when quite plain and unornamented, and we see nought but the form with simple ground-colour and glaze. It is in sight of such simply-made ware that the mind is compelled to wander back in time to the doings of the antique Etruscans and Greeks, and then to our own time, so dead in method of work, though amid so many enlightened and school-filled surroundings. It is curious thus to find in active operation the selfsame method of work as obtained in the days of Phidias, though in so distant and out-of-the-way a spot as this far-off Asiatic city.

There may be interest in the nature and kind of materials used in this primitive pottery, so different from our own. For the special ware called "tchini," a white felspathic clay is used, found in the mountain districts between Tashkand and Khokand; quartz, also, got from the mountains in the shape of pebbles from the gravelly banks of the river near Samarkand. The lime and soda are derived from the ashes of a species of salicornia. The glaze is made of a mixture of "ishkar," with oxide of lead, and to these is at times added an admixture of tin, and it is this which gives that peculiar iridescence so marked and attractive in Moorish ware; and if a greenish hue or tint is required a little verdigris is added. When the vase or cup is intended to be enriched with ornament the colours are mixed with water and gum, and are then laid with a goat's-hair brush on to the dry surface of the glaze before firing. Blue is produced by lapis lazuli, violet by manganese, yellow by ochre, and green by verdigris. It will thus be seen how simple and primitive the materials are which are in use in this far-off locality, and how the condition of things common all over the world at one time, still exists. It would be most curious and of no small interest to ascertain in detail the precise particulars of this primitive work.

The colours most usually employed in the designs are blue and white, with occasionally a bluish-green tinge for the ground, and at times yellow or dark violet is, though more sparingly, used. But, truth to tell, it is not, as is so often thought, the special colour that attracts, but the method of laying on, the painting, indeed, the handwork, that gives the charm, just as it is found to do in a master's painting. No matter what the colours, whether dark or light, thickly or thinly laid on, with or without attempt at design or pattern,—the result to the eye is the same. We are not looking at mere china ware, as in our shops, but at a picture, more or less, just indeed as we might and must look at, and feel interest in, a painted jar or bowl in one of Titian's, or Rembrandt's, or Millais's pictures. The roughness and even rudeness of the object is nothing; it is the evidence in it of artistic power, even if humble in kind, that we regard and admire. A lesson, indeed, is to be found here, and might be made right good use of by our schools of design,—so called,—if not by our manufacturers of ceramic ware. It would be curious to note, were it possible, the price put by the acute vendors of "curiosities" on a vase, even of rough ware, if painted on by a popular artist. It is hardly to be guessed at.

It may be all but needless to say that the tools and apparatus used by these ingenious artist-workmen are of the very simplest and most primitive sort, consisting mainly of turning spindles, and reels, and other small implements. A lathe set in motion by a bowstring is common, with chisels and spatulas to work and mark the clay. But it is with his simple and flexible finger-ends that he chiefly works, and guided by his instinctive knowledge of *form* and *proportion*, and with an ever-conscious knowledge of the *use* to which the object he is moulding is to be put, that the final result is accomplished.

Thus, the materials in use, the tools employed in the work, the *modus operandi*, and the way of life of those who execute it, are all quite new to us, and are altogether different from such things here. Might not the vast organisation at work in the great French Exhibition do something towards making us better acquainted with it? All know what that grand display in the main consists of, and that all that modern appliances, and mechanical helps, and new materials, and short roads to given results, find in it ample illustration, and not a little public notice; but the art of the *workman, as an artist*, is it not lost sight of in the general blending together of every man's work when working as part of a machine?

THE NEW UNIVERSITY BUILDING OF STRASBURG.

The *Imperial Gazette* of Germany publishes the result of the competition for the prizes awarded to the best designs for the above edifice. The first prize was awarded to the design by Herr Warth, architect, of Carlsruhe; the second to Eggert, of Strasburg; the third to the firm of Hossfeld & Hinkeldeyn, of Berlin; the fourth to Mylins & Bluntschli, of Frankfort-on-the-Maine; and the fifth to O. Sommer, also of the last-mentioned city. There were considerably over 100 designs sent in, and they will all be exhibited in Berlin at the end of the present month. The sum which the Prussian Government contemplates spending on the erection of the new University buildings slightly exceeds 500,000*l*.

Finds in the City.—Advantage is being taken of the pulling down of some old buildings belonging to the Corporation of the City of London and the Stationers' Company, in Wood-street, to widen that street on the south side of Gresham-street, and the Corporation site has been leased for eighty years at an annual ground-rent of 2,500*l*., to D. Dewar, Son, & Sons (Limited). It may be interesting to note that the buildings taken down formed remnants of the old Wood-street Compter Prison, which was rebuilt in 1535. During the recent excavations several objects of interest have been discovered, viz., the old prison gates (embedded in a wall); some old pottery of Roman, Samian, and old English ware, Early English smoking-pipes, silver coins, a pair of candlesticks, a silver salver, &c.

THE OPENING CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

THE Architectural Association's opening *conversazione* for Session 1878-79 was held on Friday evening in last week, and must have been attended by at least 500 ladies and gentlemen. The large galleries were exceedingly crowded, notwithstanding the fact that the meeting-room and library of the Royal Institute of British Architects were, by the permission of the Council, allotted to the use of the Association for the evening. The Association continues to grow apace, numbering, as it does at the commencement of the session, 820 members, which number will be increased to more than 850 at the next meeting, when thirty-seven new members are to be elected. Two commendable innovations were made in the conduct of the proceedings, — firstly, the meeting-room of the Institute was set apart for the distribution of prizes, and for the subsequent speechmaking, leaving the large lower gallery unencumbered with the hundreds of chairs which in other years have impeded the free circulation of the company; and secondly, the refreshment department was not rendered tantalisingly inaccessible by being located amidst that crowded collection of samples and models of building materials and contrivances known as the Museum of Building Appliances, but was located in the Association's usual meeting-room. The Entertainments Sub-Committee, however, apparently wished to impress upon a large number of their guests that there is no such thing as unalloyed happiness in this world, not even at an architectural *conversazione*. At any rate, they certainly succeeded in effectually impressing this lesson upon the minds of a great many ladies and gentlemen. To be definite, the arrangements, or rather the absence of arrangements, in the gentlemen's cloak-room, were execrable, and ended in utter breakdown and confusion as the guests wanted to leave. The little room on the staircase, hardly larger than a rabbit-hutch or a band-box, which does duty as the cloak-room for the Institute, is totally inadequate to the requirements of so many visitors as attend the Association's *conversazione*. Things would not have been so bad had arrangements been made by the erection of a barrier and the stationing of the hall-porter or a policeman at the door of the cloak-room, so that people could have filed in at one side of the door, and, having got their hats and coats, could have filed out at the other side, in a continuous stream. As it was, there was a crowd of people trying to push in, blocking up the doorway, and impeding the exit of those who had miraculously managed to obtain their "lots." The battle was to the young and stalwart, and the elderly and diminutive had to wait as patiently as they could on the cold and draughty staircase,—a situation which, after the sweltering heat of the rooms, was eminently provocative of catarrh and bronchial affections. Some gentlemen had to wait for more than an hour, and when they did at length succeed in obtaining admission into the cloak-room, they had the utmost difficulty in procuring what belonged to them; for the Babel of voices and confusion of clothing that prevailed would beggar description. Hats, coats, and umbrellas were thrown over the heads of the crowd higgledy-piggledy, reaching their owners, perhaps, or else falling under foot. While the gentlemen were engaged in this undignified struggle, the ladies, who had accompanied some of them, were shivering in the hall, within sight and hearing of the proceedings. Altogether the scene was highly discreditable to those who were responsible for the arrangements, and we feel it to be our duty to say so. But to return to the *conversazione*. In the meeting-room of the Institute were hung the drawings of the successful competitors for the prizes offered by or through the Association, and in the lower galleries there was a large and interesting loan exhibition of cabinets, lent by Messrs. Trollope, Messrs. Gillows, and others; paperhangings, by Messrs. Jeffrey & Co.; a quantity of Japanese carved work, now being supplied by Messrs. Trollope for one of the Cunard steamers; a valuable and extensive collection of diamonds and other precious stones, lent by Mr. E. W. Streeter, of Bond-street; and a large number of water-colour and other drawings. The band of the Second Life Guards, under the direction of Mr. W. Winterbottom, was in attendance. Shortly after nine o'clock the formal proceedings of the evening were commenced by the distribution of prizes, the meeting-room of the Institute being more crowded than we have ever seen it.

Mr. Henry Louis Florence, A.R.I.B.A., president, took the chair, and distributed the prizes (which consisted of books to the value named) as follows:—

Essay Prize of two guineas and a half, for a *resumé* of "Vaulting" by M. Viollet-le-Duc: Awarded to Mr. R. E. Crossland. (Motto, "Arches on Arches.")

Architectural Union Company's Prize of 5*l.*, for the best series of measured drawings of existing buildings in England, or of portions of buildings, erected previously to the eighteenth century: Awarded to Mr. A. B. Plummer, for drawings of Waltham Abbey. (Motto, "Quis.")

Class of Design Prizes (three guineas and two guineas), for the best and second-best series of sketches contributed in the class during the past session: Awarded, First, to Mr. A. W. Hennings; Second, to Mr. J. W. Fisher, of Birmingham. (Honourable Mention of Mr. F. R. Farrow.)

Elementary Class of Design Prizes (two guineas and one guinea), for the best and second-best series of studies submitted during the Session: Awarded, First, to Mr. Burrows; Second, to Mr. Eden Smith, of Birmingham. (Honourable Mention of Messrs. R. G. Davis and H. C. Nixon.)

Class of Construction Prizes (two guineas and a half and one guinea and a half), for the best and second-best series of papers submitted at the meetings of the class: Awarded, First, to Mr. R. E. Crossland; Second to Mr. B. J. Capell. (Honourable Mention of Mr. F. R. Farrow.)

The President then delivered a brief address, in the course of which he said:—It must always be remembered that this is purely a students' society,—that its entire aim and object is educational, and that while ever on the watch for opportunities of aiding and assisting the progress of the student in the earlier stages of his career, the care of all questions relating to professional practice, and the task of maintaining the dignity and independence of the profession, are left to the elder and more powerful body, the Royal Institute of British Architects. As, however, the Institute is very largely recruited from the Association, the interests of the two societies are the same. Both labour for the same object, —the advancement of our art, and with this end in view, we are enabled to carry on our work without rivalry, and with a mutual freedom and esteem, conducive to the best interests of each. To any one outside the profession, it must appear strange that a society numbering more than 800 members should exist solely for the purposes of education, and that this work, more or less complete in its character, should be carried on without any approach to academical teaching or system. To a foreigner or stranger visiting our classes, the absence of any teacher, paid or unpaid, would be simply marvellous. And when we consider that we carry on with success no fewer than six separate classes; that we have established a lending library of two thousand volumes (the only one in the profession); that we issue a yearly volume of the "Sketch-book" and organise an annual sketching excursion of a week's duration; besides the amount of work done in the preparation of papers, lectures, visits to buildings, class and prize drawings, &c., I think we may say we are doing a good and necessary work. Our influence even extends into the provinces, and, as forerunners of recent politics, we have instituted a protectorate over the important Birmingham Architectural Association, by which means the members of that body are enabled to avail themselves of our classes and our library, and with such good results that some of their members are among our prize-winners. During the past year we have not merely maintained, but advanced, our position. Firstly, in the important matter of numbers, no fewer than 106 new students have joined the Association, and we have at the present time a strength of 820 members. The classes have all been carried on successfully, especially the Elementary Class of Design and the Class of Construction,—two of the most valuable which we possess. Others which have not so well responded to our expectations will probably during the session (owing to new arrangements) obtain a larger share of support. But upon all the points connected with the internal organisation of the Association, I reserve my remarks until my opening address on the 8th of November. It will be seen on looking at our syllabus* for the new session how many and how varied are the subjects which an architect is called upon to study, and a certain proficiency in each is indispensable to him in practice. He may almost be said to be like Cerberus, three gentlemen at once. He has to be the builder or man of science, the man of business, and an artist. It may, then, be fairly asked if it is found that the education here imparted is sufficient for this end, and to this I must frankly answer, it is not. This or a kindred society is an excellent adjunct to the every-day training of an architect's office, where the pupil sees for himself the ever-varying difficulties of practice and the method of conducting business, but is left with but little help in the more scientific and artistic branches where he has no special inducement for application to work, and no spur of emulation. Here the Association steps in, offers him companionship, gives opportunities for mutual study, tests him by comparing his work with that of others, enlarges his ideas and mind by continual exercise in design and construction, and thus far is invaluable. But surely the training of the architect should not be carried on in this imperfect sort of way! He whose work is to affect the life, customs, and tastes of his own and of future generations should not be left, if he wishes for instruction, to the help of his fellow-students alone; and further, when he, by unwearied work and patience, has attained a degree of knowledge and skill sufficient to warrant him to assume the title of architect, should he not be protected from those who take an equal rank and title with him, not in virtue of their knowledge, art, or skill, but by the easy process of inscribing it upon a brass plate? Can we suppose that the public, carefully sensitive as to the qualifications of the physician, or the lawyer, will not expect some equal sign of distinction from the young architect?—the more so as technical knowledge is becoming more generally diffused, and subjects directly concerning our art are now studied in the universities and higher schools. I do not by this advocate the granting of a diploma; the existing machinery of Fellows and Associates of the Institute is sufficient for the purpose. But let it be indeed the fact that the Institute comprises the entire strength and talent of the profession, and let the title of "Associate" only be gained as the result of examination. The Institute will then be national instead of local, the demand for the training necessary for its examination will lead to efforts being made for its supply; and it will then attract to itself all those who desire the right to call themselves architects. If in these few remarks I have dwelt more upon the future than upon the past, it is because I look forward with confidence to a revival of interest in architecture. None can have failed to perceive the new impulse given to the cultivation of the arts accessorial to architecture, and the far greater consistency and harmony between the interiors and exteriors of our houses. Far from being discouraged by the criticism which our architects have undergone from sundry self-sufficient and self-admiring critics, I regard it as a healthy symptom that such criticisms are read and examined, not only by those whom they directly concern, but by the general press and the public. The year now drawing to its close has witnessed another international exhibition of the arts of peace, and also more than one conference. More modest than that of Berlin, the Congress of Architects assembled in Paris (which I had the honour of attending as representing this Association) concerned itself solely with international affairs,—to questions relating to the condition of our art, and to endeavours to promote an international feeling of sympathy and unity among its professors. As, however, our delegate, Mr. R. Phené Spiers, will, during the session, read a paper upon the proceedings of this Congress, I will not detain you by further allusion to it. A biennial Conference of Architects was also held in London, which attracted a large number of our provincial brethren, the importance and extent of whose work is not, perhaps, sufficiently recognised in London. Beyond this, it cannot be said to have had any very distinctive character, and it may perhaps be suggested that an interval of five years between these conferences would be found preferable to one of two years. Entering upon a new session with enlarged means, and an earnest desire to increase the efficiency of the Association, we feel sure that the goodwill of our friends will attend us in our efforts, and we count upon their aid and encouragement so long as we endeavour to carry out the spirit of the motto under which we work, to "Design with Beauty" and to "Build in Truth."

Mr. J. Douglass Mathews, past president, having said a few words expressive of his pleasure in the prosperity of the Association,

Mr. Thomas Blashill, another past president, remarked upon the great increase of membership with satisfaction, although he observed with regret that the prize-winners were fewer in

* Published in the *Builder*, p. 1104, *ante*.

number than usual. This was a somewhat remarkable conjunction of circumstances. He happened this year to be one of the judges for the Essay prize, and he was extremely surprised and sorry to find that there was only one competitor for it, although it was true that the essay sent in would probably have taken the prize among a large number. He thought that the apparent dearth of interest taken in some of the competitions was due to the over-diffidence or bashfulness of the members, but they ought not to be deterred from competing by such a consideration, but ought to feel that on becoming members of the Association they were equals in the race, and that they were thoroughly welcome to the brotherhood and fellowship of the Association. In conclusion, Mr. Blashill congratulated Mr. Florence on the position he had attained as President, after many years of diligent attendance and hard work in promoting the welfare of the Association.

Mr. R. Phené Spiers made a few remarks, joining issue with the deprecatory remarks made by Mr. Blashill.

Professor Kerr, in response to a call from the Chair, said he observed with interest that the complaint made by Mr. Blashill as to the difficulty of inducing the members to compete for the Essay prize was precisely the same complaint made by the Institute. He certainly did think that it would be well for young architects if they would cultivate the use of the pen as well as the pencil. Of course, he knew that the great reason to be assigned for their backwardness with the use of the pen was that they were so very much occupied in the more important study of drawing. Every time he visited the Association he had reason to be more than satisfied with the progress of draughtsmanship exhibited in the drawings hung up. He thought that the draughtsmanship of the young architects of England in the present day was something upon which they deserved to be congratulated most sincerely, and encouraged in to the utmost. Before sitting down he would endeavour to say a few words which he hoped might encourage the younger men of the Association to take correct views of their functions as architectural students, and more particularly with reference to that which would always be their favourite study, viz., drawing. There were two great schools of living architecture in Europe at the present moment, and these two schools of art corresponded very closely with the division of races in the civilisation of the world. There was a very marked distinction between the art of the Latin races and the art of the Teutonic races. Latin art was represented admirably by the French and Italians; Teutonic art was represented equally admirably by the English, and, following them in merit, by the Germans. There was an essential distinction of genius between the two races, which was shown in everything. In their architecture the French genius evinced extreme refinement, delicacy, neatness, and universal *finesse;* the English genius, on the other hand, showed itself in energy, earnestness, masculinity, and vigour. It was not necessary to suppose that on either side of the line the whole of the qualifications of the other side were absent, but the line of demarcation was nevertheless perfectly clear. Now French draughtsmanship was essentially and most notably of a delicate, refined order as compared with English draughtsmanship, which was muscular, vigorous, and earnest rather than refined or delicate, or even elegant. In other words, the characteristics of the draughtsmanship passed into the executed design, proving that the study of drawing was, in fact, the study of architecture. The acqusition of the power of draughtsmanship was not only the acquisition of the language of architecture, but, when practised by the hand of a master, it told him what to design. By way of educing a moral from this, he would say that in architecture, as in everything else, increasing refinement was the order of the age, and the suggestion he had to make was that our young men should endeavour to introduce into their style of draughtsmanship,—and then it would be introduced presently into their style of artistic composition,—a little more of that elegance and *finesse* so characteristic of the French, without dropping any of their own native muscularity. Not ceasing to be earnest, energetic, and vigorous, they should endeavour, as far as they could, to employ those finer qualities of elegance and piquancy, so as to avoid, further than they at present avoided, the tendency to be somewhat clumsy and coarse in design, at the same time not becoming too finicking and effeminate. He should be pleased if at any future time he saw occasion to think that these remarks had tended towards the advancement in refinement which was so essential in the architectural world at the present day. With regard to the Queen Anne style, the present circumstances of that style illustrated exactly what he had been endeavouring to point out. The name of "Queen Anne" was as good as any other: it suggested nothing in particular. The style which was practised at the present moment, and which was becoming increasingly fashionable, was in reality Classic architecture, for the sake of a change, developed under those principles of the picturesque which were the essence of our recent Gothic practice. Why, then, had they chosen that peculiar style? He said for the sake of a change, but he was beginning to think that they would not attain to the more refined Classic of the French. They had to avoid in the present fashion mere quaintness and frivolity. There was a good deal of the latter, but that was not the end and object of architecture. Comicality was not at all in its place on the architect's drawing-board or in architectural illustrations; but there was a good deal of architectural design published nowadays which was absolutely comical, and would be laughed at in the course of a few years. Let architects be sober in their design, and one way of testing whether a drawing was sober or not was to let it be made so as to represent the building as the building would be when it was built, eschewing all those tricks and peculiarities of draughtsmanship which were so charming in a picture or an etching; then, if the building were bad in design, it would appear bad in the drawing. A great deal of bad architectural work at the present time was to be attributed to nothing more than the self-deception of the designer by his draughtsmanship.

Mr. James Fowler, of Louth, said a few words as to the advantages gained by those who took part in the annual excursions of the Association, and expressed a hope that in future years arrangements might be made to increase the number of excursionists.

POISONOUS AND NON-POISONOUS PAINTS AND WALL-PAPERS.*

Until the autumn of last year, I was unable to form any accurate idea of the frequency of cases of severe illness occasioned by poisonous paints and wall-papers. I had, it is true, within my own professional experience, known of several fearful outbreaks of lead-poisoning among the workpeople employed in white-lead works, and among painters and others working in an atmosphere heavily laden with the saturnine vapours given off in the process of applying such paint or during its drying. I had also been consulted in a great many instances respecting wall-papers which were suspected of being coloured with arsenic, in consequence of illnesses of the type recognised as arising from these sources. But, when I was requested by Mr. Jabez Hogg, the well-known surgeon and microscopist, to furnish some particulars of the more striking cases I had investigated, to be laid before Government, I was astonished to find that during the last eleven years I have traced back no less than one hundred and twenty-three cases of illness attributable either to the diffusion of carbonate of lead (common white paint) or to arsenical or antimonial colouring matters in paint or on wall-papers. Others have been working in the same field of observation, and of those who have witnessed the danger of permitting the use of poisonous pigments and wall-papers, I could mention the testimony of eminent medical men, analytical chemists, and others who have recently protested against the employment of such deleterious substances.

Perhaps less trouble will be found in procuring an absolute prohibition against the use of arsenical pigments, than we can hope to obtain by Parliamentary enactment against other poisonous paints. But this should only render the necessity the more apparent that the widest possible publicity should be given to the direful effects of all domestic poisons, and also to point out how they can be avoided.

Supposing arsenic to be abolished from all dress fabrics, curtains, and paper-hangings, it will only require one more step in advance to banish salts of copper, lead, and antimony from the matters with which these materials are dyed or coloured.

We have still the Schweinfurth green paint, almost universally applied to the ordinary green Venetian blinds, which dries in the sun, until clouds of arsenical dust are thrown off every time the blinds are sharply pulled up or let down. And we have, worse than all, the poisonous white-lead pigment, which has more to answer for in the total category of ailments which afflict civilised humanity than has ever yet been appreciated.

In previous papers I have quoted the dismal train of painful symptoms induced by being subjected to an atmosphere impregnated with the emanations from carbonate of lead. I have given the reports of the medical officers of some of our largest Government dockyards, and I have adduced official testimony as to the deadly nature of the injury to constitution which follows upon a lengthened exposure to this pernicious influence. I will now suggest that for the interior of dwellings, no more white-lead shall be used as the basis of oil paint.

The only substitute for white-lead until lately offered has been zinc oxide. Many technical objections have been taken to its use. Among the rest, its want of body and poverty of covering have rendered the oxide of zinc white expensive in requiring several more coats to be laid on than are necessary with white-lead paint. The fine brilliant white and unchangeable permanence of this preparation, together with the non-poisonous character it has borne, have conduced to procure for it a good reputation, notwithstanding the expense of its application, and other defects. The same difficulty has been found in attempting to work up some of the beautiful chemical combinations of silicic acid with zinc, calcium and magnesium, which have also the pearly whiteness of zinc oxide, and with an even more decided want of opacity when mixed with a sufficiency of oil. I must here mention a peculiarity in the paint, formed by grinding white-lead in oil, which affords the first temptation to its most detrimental use. I allude to the fact, not so well known as it ought to be, that carbonate of lead always contains a certain proportion of lead oxide. This forms a true soap with the oil combining with the latter, and giving for a considerable period a fictitious body which makes it appear to completely cover a larger surface than it is really competent to effect.

Now, soap is not formed without a partial hydration of the oil, and a small increment of the element of water thus worked up with the paint, emulsifying another portion of the oil in which the lead carbonate is ground. How long it takes to work out of the paint and to evaporate when thinly spread on hard surfaces, has not yet been ascertained; but for a long time after the paint has become apparently dry, this process undoubtedly continues. As affording some indication by which to judge when this drying-out has terminated, I may remark that by the time the oleic acid has driven out its equivalent of the carbonic acid from the lead carbonate, and re-combined as oleate of lead, there is no longer that density of covering body, and the coating becomes so much thinner and less opaque as to allow whatever was underneath to dimly appear through it. During this giving off of matter which impregnates the surrounding air, we have a right to assume by experience that an injurious influence is exercised on the health of those affected by it.

Working with a view to produce a substitute which shall be harmless in its preparation, application, and throughout its use, several chemists of repute have pushed forward their experiments with other salts of zinc. It was left, however, to Mr. Thomas Griffiths, of the Silicate Paint Company, Liverpool, to bring out a satisfactory commercial article, which, while it obviates all the objections urged against oxide of zinc paint by the painters and decorators, complies with the sanitary condition of being perfectly free from poisonous effects upon the workmen who prepare it, the painters who apply it, and upon the people who reside where it is used.

I have reason to believe that other persons have thought of pure sulphide of zinc as being probably the best suited to form the dense white basis of our domestic oil paints. But the natural sulphide of zinc (blend) is commonly rather translucent and various in colour, from a dingy white to a stone-colour, shading off to a reddish-brown, sometimes appearing opaque

* From a paper by Dr. H. C. Bartlett, read at the Cheltenham Congress of the Social Science Association.

with yellow, green, or black tinges—not very encouraging to the paint manufacturer. The excellence of the chemically-pure white sulphide, however, induced a lengthened series of experiments to be tried to carry out artificially the chemical process of making zinc sulphide of the purest white, and, as I shall explain, with almost unexpected success.

My investigation of zinc sulphide, or rather of the oxy-sulphide, to render the nomenclature more accurate, has been mainly undertaken with sanitary objects in view. I find that its physiological effect upon animal and vegetable tissues is decidedly antiseptic. It has, therefore, a highly preservative action in protecting wood, &c., from decay, and it unites with the fibres with which it comes in contact, forming permanent bodies with them.

The peculiarly small affinity which zinc has for combining with carbonic acid prevents, to a great extent, the formation of carbonates, and also arrests the saponification of the oil long before the reactions I have described as occurring with carbonate of lead can take place. This is an invaluable property in its application to iron and other metals. . . . .

In suggesting that white-lead paints should be banished from the category of those permissible for use in the interior of our dwellings, I have thought I should do more to accomplish that most desirous result by describing the new zinc paint, than by harrowing the feelings in the endeavour to adequately represent the nature of the evils attendant upon the paints now in vogue.

I have only to add, that Griffiths's patent white is at least as economical as lead, is as dense, and covers even a larger surface; and being of a more perfect snow-white than any lead pigment, it will remain for years unchanged in colour. No fear need now be entertained of severe illness from a newly-painted house. No need to postpone the evil day when the painters take possession of our domiciles, on the ground that some one of the family is very susceptible for a long time to the bad influence of paint.

No occasion can be made to attach an undue importance to a comparatively new invention. But if a few thousand painters and paint-grinders can be saved from the tortures inflicted by the use of white-lead, and a few more thousands are prevented from experiencing the lesser nausea and other recognisable consequences of breathing a lead-laden atmosphere, oxy-sulphide of zinc will not have been introduced as a domestic paint in vain.

WILHELMSHAVEN.

Now that the extensive harbour works at this greatest of German naval establishments have been completed, we are enabled to take a general view of them. The details supplied are highly interesting. The harbour is a so-called tidal one. Ships entering it have to pass through a first sluice into an outer harbour, 650 ft. long and 390 ft. wide, and next, through a second sluice, into a canal nearly 3,500 ft. long, which leads to the war harbour proper. At the head of the latter are three dry-docks and two slips. This harbour is a little over 1,300 ft. long, and rather more than half that width. Its sides are built of clinkers, and faced with ashlar; the walls, besides having to resist the usual lateral pressure, are made strong enough for supporting powerful turn-stile cranes. One of its longest sides is not provided with a stone quay, but, like the canal, has only a batter of stone above water-level, to facilitate a future extension of the harbour. The depth of water in all the basins is 36 ft.; consequently, they are all available for the largest ships. The docks have an upper average breadth of 26 ft., and are 466 ft. long, so that they may be used for the most ponderous iron-clads yet constructed. They are closed by means of iron pontoons.

At the present moment works are proceeding on the south side of the canal, for new mercantile docks. These will be connected with the war harbour, and thus a second outlet will be provided for the latter. The naval yards and depôts lie around the war harbour. As far as the fortications on the land side and the coast defences are concerned, there is no *enceinte*. Three detached forts, placed at such a distance from the war harbour as to protect it against a bombardment, close the ground on the land side. All the works are very spacious, well equipped, and support each other in a most efficient manner. Besides this front of fortifications facing inland, at present almost completed, there are coast defences protecting the town of Wilhelmshaven in an eastern and north-eastern direction. All the works are connected by telegraph with the central station; there are also observatories along the coast, used for announcing the approach of hostile vessels, which may be blown up by torpedoes fired from the land at the moment vessels are over them, their exact position being indicated by means of Siemens and Halske's instruments for measuring distances.

Leaving out of the question the fact that, considering the precarious state of German trade and industry for the last few years, the treasure lavished on the above and other works might have been more beneficially employed elsewhere, if not entirely saved to the over-burdened taxpayer, it is generally admitted that the large sums required for the gigantic works now completed have been well laid out. The Germans consider that they have here one of the finest naval stations in the world.

THE BRITISH WORKMAN AND HIS RIVALS.

The article on the Lancashire Cotton strike in the last number of the *Quarterly Review* is a patient chronicle of serious and menacing facts. We pointed out at the time of the strike, that the true need of both parties, but especially of the working people, was accurate knowledge of the state of the cotton business, both as to production, cost of production, and consumption, in the great factories and markets of the world. This has been supplied more fully by the writer of the paper in question than by any one who has yet taken up the pen in this country. It would be mischievous to disguise, and hard to exaggerate, the importance of the statistical returns which he has brought together. For the spinners, weavers, and other working men of England the information is of the utmost moment. It is far more to them than is the price of corn, or the ruling rate of wages, this year or the next. It shows what is the actual movement of the cotton trade, and how that movement is being diverted from Lancashire by the efficient agency of short time and uncertainty as to the supply of labour. And it is full of menace for the future, unless we retrace our steps in these matters.

From 1840 to 1870 the consumption of cotton in Great Britain, the Continent of Europe, and the United States advanced with signal rapidity. The consumption, in thousands of bales, was as follows:—

	1842.	1852.	1860.	1870.
Great Britain	1,372	1,877	2,635	2,760
Continent of Europe	816	1,156	1,776	1,772
United States	376	684	843	928

It may aid the reader to understand this great issue more fully if we represent the above figures proportionately, as in the following table:—

	1842.	1852.	1860.	1870.
Great Britain.....	4·2	5·7	8·0	8·5
Continent of Europe	2·5	3·5	5·4	5·4
United States.....	1·0	2·0	2·6	2·9
Total.....	7·7	11·2	16·0	16·8

For the first twenty years the consumption more than doubled, the advance being slightly more rapid abroad than at home; in the third decade the advance was comparatively trifling, But from 1870 to 1871 there was a leap to 3,132,000 bales in Great Britain, 2,327,000 on the Continent, and 1,140,000 in the United States, or to 9·3, 7·1, and 3·5, or to 19·9 in all; hard upon three times the consumption of 1842. Here, however, the British consumption halted. The ups and downs are within 200,000 bales a year, allowing a maximum of 3,335,000 in 1873, sinking to a minimum of 3,017,000 in 1876, and reaching, in 1877, 3,149,000, or 73,000 less than in 1871. The consumption of the Continent followed a very similar course, amounting in 1877 to 2,283,000 against the 2,327,000 of 1871. But the United States consumption, though sinking to 1,067,000 in 1872, then rose, with one exception, year by year, being 1,439,000 in 1877. To these have to be added, for that year, 237,000 bales for India, which in 1860 took only 6·5. This makes the total consumption for 1877 amount to 7,108,000 bales, or 21·8 compared with 7·7 in 1842. And while the share of Great Britain has advanced from 4·2 to 9·6, that of the United States has advanced from 1 to 4·4, that is to say, the progress of America has been just double as fast as our own.

The competition of the United States is thus assuming a serious importance. They now actually export a certain class of goods into England. Their imports of cotton goods have declined from 227,000,000 yards in 1860 to 61,000,000 yards in 1877, while their exports have increased from 480,000*l.* of value in 1872 to 2,132,000*l.* in 1877. India is making strides that are no less significant. The consumption of cotton has increased from 65,000 bales in 1871, to 237,000 in 1877, and the exports from India of Indian-made cotton goods have risen from 8,048,939 yards in 1870 to 15,544,168 in 1876-7. The exports of Indian-made yarns have increased, in the same time, from 1,200,958 lb. to 7,926,710 lb., or nearly sevenfold. As to this, it is remarkable that while the total export of English cotton goods in 1877 was between four-and-a-half and five times the amount in 1840, the export of yarns had not quite doubled in that time.

The upshot of a mass of detail which the cotton-workers of England will do well to study, is that our export of cotton no longer grows at its former rate. Thus, other countries are making more rapid strides than is the case with ourselves. And thus both the United States and India, from being customers for our goods, are becoming competitive manufacturers and exporters, meeting us in the supply of neutral markets. The convenient mode of throwing the blame on our manufacturers for "overproduction" is unsupported by the facts, which show that we are losing our markets by excessive cost of production, caused mainly by the reduction of the hours of work.

The figures cited prove that the British cotton trade has been stationary for seven years, during which the consumption of the Continent and of the United States has increased by half a million of bales, or by 12½ per cent. in annual amount. The expedient of short time only means "hold back till all the stock in hand is sold, and then purchasers will be found to come forward, and you can go on as before." But England cannot go on as before while her sons are content to work 56 hours against 60 or 70 or 80 hours on the part of the foreign workmen. England will not force a market by *holding* back her supplies so long as the American manufacturer can obtain labour at 30 per cent. less cost than the English manufacturer. What will be the case with the Indian manufacturer who has raw material at hand, market at hand, and labour at one-sixteenth of the English price (per man that is), when he applies, as he is daily doing, English machinery, and, if needed, English capital, is but too certain. It is the case, we are proud to believe, that the English workman has a physique and a mental vigour which will enable him to give great odds to most of his competitors. But we must remember what terrible odds the hare could afford to give the tortoise. Yet the tortoise won. And we do not consider that the English workman can afford unnecessary odds, as against either the American, the Frenchman, the Belgian, or the Indian. The cotton operative may learn a most instructive lesson from the price at which the East Indian Railway works its great and increasing traffic. With Indian coal, and with, to a great extent, Indian labour, it works at from 40 to 50 per cent. less cost than the best English railways. What is done under our very eyes in the case of a railway, which demands labour of a very high class, can be done, there is no possible question, in the matter of textile manufactures, which take labour of a much less skilled order. For every day that the English workman waits, or strikes, or works short time, he is giving a start in the race to rivals who are much closer on his heels than he imagines; and who, in a few years more, will tax his most strenuous exertions, for the whole time formerly devoted to daily labour, to compete with them on a fair field.

Mr. John Buik, the contractor for the widening and deepening of St. Andrew's Harbour, was killed a few days ago on the new line between Leuchars Junction and the Tay Bridge. The deceased had left St. Andrew's by the 1.25 train, and on arriving at Leuchars had set out along the line with the intention of proceeding to Dundee. While doing so he was run down by a passing train, and killed instantly.

ON THE FUTURE OF ENGLISH ART.

HAVING, in my letter of last Saturday (p. 1117), glanced at some of the anomalies existing in English notions upon art, I will now endeavour to give some systematic exposition of what is really needed in this country to turn its wealth and resources to account in the true interests of the fine arts. In the first place, then, we require the properly-constituted sense of vision; in the second, an intelligent policy of encouragement; and, thirdly, a properly-organised system of art-education.

1. *The properly-constituted Sense of Vision.*—As we find in some individuals and in some races a constitution of the perceptive faculties more favourable to good taste than in others, it must be clear that our efforts to correct either individual or national deficiency of tasteful perception must be directed to promote that development, that organisation, that sensuous constitution, possessed by the more favoured individual and race; and that any system of art-education which leaves this radical defect uncorrected will be but superficial and ineffective "cramming." An education must, therefore, be devised which will attack this radical defect if we ever hope to have a public with properly-constituted senses,—senses fitted to appreciate excellence in art. But the most favourable constitution of the sense of vision in the interests of art must clearly be that which would exist in a perfectly-developed human being. Our educational efforts should, therefore, be primarily directed to the discovery of such a system of general education as would develope the human constitution towards perfectness. If there be such a system propounded, we should immediately adopt it. From this our first need, then, we pass to the second.

2. *An Intelligent Policy of Art Encouragement.*—That we have not one, is doubtless consequent on the national defect to which we have just alluded, a defective culture, a defective organisation, an imperfect constitution of the perceptive faculties. For in Greece and in Italy the tasteful predilections of the ruling classes moved art and artists. This has always been the true motor to great art-achievement. They did not, as we do, leave artists to make themselves if they can, and to chance occupation. The ruling classes felt that art was one of the great glories of a nation, and that art is one of the most lasting monuments and best evidences of a people's place in the scale of civilisation; for we never find a grand demonstration of art, but one of a more or less imperfect kind, during a people's progress to intellectual completeness. History teaches us that a refined taste grows up with intellectual progress. Art does not produce refinement, but comes of refinement, though upside-down theorists would endeavour to teach the reverse. The advanced intellects in antiquity and in the Middle Ages, therefore, opened out grand fields of employment for the painter and the sculptor upon grand national and monumental edifices. They called forth all the genius of the artist to meet the greatness of the occasion.

The magnitude of the works on which the artist of old times was employed compelled him to seek aid in carrying out these great works, and thus the most effective system of art-training was inaugurated,—the system of scholarships and the private *atelier*. But on this point we will presently enlarge. Our present system of manufacturing artists by hundreds and by thousands, without having any special demand for them, is socially and professionally mischievous. A policy of national encouragement on a grand scale is that mainspring needed to put all branches of the fine arts in this country into gear and working order. All our boasted art-development is the production of an army of copyists, who are employed in reproducing the works of the ancients and of a nearer past. We are now more immediately referring to decorative art. Of any national aim in art and in the art-manufactures there is not the slightest evidence. Whim courses through all the differentiations of style from Greek to Chinese. There is at the present time much less evidence of a concentric aim than there was three quarters of a century since.

3. *A properly-organised System of Art Education.*—The most extraordinary feature in our English art arrangements is the diffusion of our forces and the scattering of our art-treasures. It would seem natural that the Royal Academy, which had had the art-teaching of the country in its hands for three-quarters of a century, should retain its headship and continue in command, instead of which a Government Art Department was instituted, having rival interests and clashing with it. And as regards the scattering of ancient art examples, we have our modern masters at South Kensington, our old masters at the National Gallery, and our ancient sculpture at the British Museum. The Royal Academy was compelled to remove its exhibitions and its schools from their proximity to the National Gallery, which contained those treasures which it is the fashion to consider so all-important to the education of the art-student. And the collections of the National Gallery and of the British Museum, which, consistently with English views on art-education, ought to be our chief art-training schools, have, from the time of their institution until now, had no professors appointed to them to direct the students' studies. There is an inconsistency about all we do in these matters.

Whether, under its new president, the Royal Academy will be able to re-assert its claim to dominate the art-education of the country, remains to be seen. It would appear to me that the functions of South Kensington ought to be restricted to preparing art-teachers for colleges and schools, to the supervision of art-training with reference to its place in general education, whilst art, pictorial, sculptural, and architectural, should be the province of the Academy. The provincial art-schools of the Department should be mitigated in their art-pretensions, and converted into science and art schools, where science and art of an elementary character should be taught at moderate fees, and where popular lectures should be periodically delivered.

One of the first reforms which the Royal Academy should effect in its own educational arrangements, if it desire to have a more important influence upon the arts of the country, would be the establishment of Schools of Composition. Three large rooms might be set apart for this purpose, each under the direction of an Academician, *en permanence*. Into these, students of a certain standing might be admitted to carry out their early works. They should be admitted on their own free choice, and with the concurrence of the director of the class. This would be a first and important step towards the establishment of the private *atelier*,—an institution which is at the root of French excellence in the arts and in the art-manufactures. The *atelier* is the modern substitute for the ancient system,—that system of scholarship which was necessitated by the demand for great mural works. It is only by the enlistment of men educated for the higher departments of art in the service of the manufactures that decorative art will take a high place. It was so in Italy; it is so in France; and, if we desire to make our mark, it must be so in England.

We hear a great deal of Wedgwood, but it was not Wedgwood himself who endowed his wares with excellence, but the great artists whom he employed. To Wedgwood only belongs the merit of foresight and business tact,—the wit to perceive that his wares would only become famous by employing first-rate talent in their production. Wedgwood was but to Etruria what Boulton was to Soho,—the business factor, not the genius. But the manufacturer of the present day has not Wedgwood and Boulton's courage and foresight to venture upon the cost of first-rate talent. He makes shift with journeyman ability, and the reproduction of copies. There is, consequently, no progress. The same old things are continually being turned out, and they remain behind when they might go in and win by several lengths.

There is a fourth point which I omitted to mention, and which deserves serious consideration, and that is a reform in the tone and character of our art literature, our art criticism. It is too loose, whimsical, and illogical. It is therefore, demoralising rather than bracing and inspiriting to high endeavours. It is destitute of logical force, and therefore of strength and manliness. It too often impresses one as the effusion of dyspeptic taste. Art discussion ought to be carried on with as much temper and circumspection as argument upon scientific questions. If art is to be founded on unreason, it were better that we had no art. How can that have any claim to be called "divine" which is conformed to nonsensical rhapsody? "Order is Heaven's first law," and no art which is not founded and established in wisdom can ever be excellent and enduring. The stump oratory of amateurs ought to be suppressed. Why should anybody without qualification by long study, be permitted to discourse nonsense upon art any more than upon any other professional topic, especially in England, where there is such crass ignorance upon all that relates to it? Is it for this reason that we hold out the premium of academicianship to foreigners who will come and settle here? There is a provision for foreign talent as "Foreign Members," there is liberty of exhibition, &c. Why, then, should there be a malversation of trust in electing foreigners who have not been trained in our schools, and when the number of members and associates has been considered too small for home needs? What the verdict of all reasonable patriots and of the future will be on this point there cannot be a shadow of a doubt.

METER.

LONDON WATER-SUPPLY.

THE magnitude of the extra responsibilities that would devolve upon the Metropolitan Board of Works in taking over the property of the water companies may be inferred, in part, from some of the figures in the report of Colonel Frank Bolton, water examiner under the Metropolis Water Act of 1871. At present, the eight metropolitan companies give an average daily supply of 137,389,525 gallons; they serve 549,267 houses, and a population of 3,924,837 persons; they have storage reservoirs for 130,687,000 gallons of filtered water in covered reservoirs; they have 128 pumping-engines, with an aggregate of 14,461-horse power; they have 3,165½ miles of main pipes, 716 miles constantly charged, and 4,653 hydrants; and they have 79 acres of filter-beds.

Colonel Bolton reports favourably as to the diligence shown by the companies to improve their works and the quality of the water supplied. The Southwark and Vauxhall and Grand Junction Companies have arranged for the construction of suitable storage reservoirs and other works at Hampton. The New River Company are progressing with the sinking of a well at Turnford, and are constructing new works at Hornsey, that include five filter-beds, with a united area of 3½ acres; the company have put down four powerful new engines, and have constructed a high-service reservoir on Crouch-hill. They have also laid about 13 miles of large mains for communication with the works referred to, and for connexions with the existing pipes. The East London Company have already provided constant supply in a large part of their district, the whole of which is being brought under constant service as quickly as is consistent with a regular and increasing supply. The company have commenced the construction of additional filters at Lea Bridge of about four acres of filtering area, and the erection of a pair of compound engines of 100-horse power each, and are also laying enlarged and additional mains with the object of giving a better supply to their rapidly increasing district east of the Lea. A new high-service tank at Buckhurst Hill will be ready for use in the course of a few weeks. The West Middlesex Company, which already gives constant supply to a number of houses on the application of the owners, requires the proprietors of all new estates and buildings to take constant supply as required under the Metropolis Water Act and Regulations, and, accordingly, the whole of the Queen's Park estate in the Harrow-road, South Kensington, and Earl's Court estates, are under such constant supply. When all new services are laid down constant supply is made compulsory by the company. Colonel Bolton reports favourably also on the works of the Grand Junction and Lambeth Companies, and states that the Kent, New River, East London, West Middlesex, Lambeth, and Chelsea companies, are all moving actively in the matter of extending constant supply. Attention is directed by the Examiner to the Regulation 14 of 1872 relative to waste-pipes. He makes the important note on the regulation,—"The object of the regulation is to prevent waste of water, but if the overflow-pipe is brought outside the house and the end left exposed to the air, instead of being carried into the drain as is often the case, it will effect an object of far greater importance by getting rid of the poisonous effluvia and gases from the drains which would otherwise ascend through the pipe, and not only be partly absorbed by the water in the cistern but be partly mixed with the air in the houses, thereby becoming a cause of fever and disease." The Examiner holds

that Government supervision tends materially to the effectual filtration and delivery of good water by the companies, but he judiciously adds that the quality of the water frequently deteriorates after its delivery by the companies in consequence of the connexion of the house-drains and water-pipes, and the foul condition of the cisterns. To these local circumstances and faults Col. Bolton wisely directs attention.

It may be presumed that Colonel Bolton does not include chemical impurities in his report on the "appearance of water." Last month, it may be noticed, his report contains for each day of the thirty, and for each of the eight companies, the letter "C," indicating "clear." There is not even a single entry "S. T.," or "slightly turbid." The Lambeth Company's water is credited with "C" in each of the thirty columns, and the margin has the note concerning the daily samples "clear, bright, and effectually filtered." Turning to Professor Frankland's report for the same month, we find him saying that "the water abstracted from the Thames by five out of the eight companies supplying the inner circle, was again of inferior quality, and that delivered by the Lambeth Company was turbid and yellow, and containing moving organisms." "Who shall decide when doctors disagree?"

GREAT SALE OF NEW RIVER SHARES.

THE largest sale of shares in the New River Company which has occurred for many years past took place at the Auction Mart, Token-house-yard, on Thursday, when Messrs. Fox & Bousfield disposed of no fewer than twelve one-fiftieth parts of a king's share, and eighteen one-hundredth parts of the same class of share; also five one-sixtieth parts, and five 120th parts of adventurers' shares, together with fifty 100*l.* new shares, fully paid up. The auctioneer, in introducing the property, adverted to the Wimbledon and Hornsey Gas shares which he had immediately before offered, observing that, unlike the article of gas, they were now dealing with a product which no ingenuity or invention could make artificial. Dwelling upon the enormous and unprecedented annual increase in the value of New River shares and the yearly income, he stated that the company's income for 1877 amounted to the grand total of 398,629*l.*, being 15,600*l.* more than for 1876, and that in sixteen years the dividends on the shares had increased 144 per cent., and that, in addition, two bonuses, respectively of 1,400*l.* on the king's shares, and 1,008*l.* on the adventurers' shares, and 4*l.* 5s. 6d. per cent. on the new shares, were declared in 1866 and 1874, and that the dividend on the king's and adventurers' shares, for the present year ending at Midsummer, was at the rate of 2,200*l.*

The twelve one-fiftieth parts of the king's shares were the first lots offered, and were readily sold at prices ranging from 1,760*l.* to 1,790*l.*, being at the rate of about 88,000*l.* per full share, or 300 per cent. premium, the nominal value of these shares, as fixed by Act of Parliament, being 22,000*l.* The twelve lots realised 21,340*l.* The next portions of the property offered were eighteen one-hundredth parts of the same class of share, all of which were sold at a similar rate as the foregoing, realising in the aggregate 14,960*l.* The next lots submitted were the adventurers' shares, which are of the same nominal value as the king's shares. The five sixtieths realised 1,510*l.* each, and the five one-hundred-and-twentieths from 750*l.* to 760*l.* each, total 11,325*l.*; the aggregate sum realised by the king's and adventurers' shares being 47,625*l.* The fifty 100*l.* new shares were next sold, the competition being very active. They were sold in lots of one, two, and three shares each, the average prices realised being 340*l.* per share, or between 200 and 300 per cent. premium. The entire proceeds of the day's sale amounted to 64,625*l.*

Mr. and Mrs. German Reed's Entertainment.—On Tuesday evening next, November 5, will be produced a New Vaudeville, entitled "A Tremendous Mystery," written by F. C. Burnand, the music composed by King Hall, and new scenery by Messrs. Gordon and Harford. The programme will conclude with a New Entertainment, by Mr. Arthur Sketchley, entitled "Mrs. Brown's Home and Foreign Policy."

AN IDLER IN PARIS AND ITS SHOW.

AFTER much weariness and vexation of spirit, no doubt, to M. Krantz, and the difficulties he had to contend with in carrying his point as to deferring the ceremony of the distribution of prizes, the all-important day has come and gone;—very well managed as regards the ceremonial part of the affair, but necessarily causing very mixed feelings of exultation and dissatisfaction amongst the exhibitors. Otherwise the Exhibition, ushered in with so much pomp and excitement, seems like the month of March, to have "come in like a lion and is going out like a lamb." Even the very balls and festivities seem to suffer from the long-continued strain on republican hospitality, as was woefully exemplified in the grandest fiasco of modern times in the way of a ministerial *fête* in the long-looked-for, long-talked-of entertainment at Versailles, and which, owing to the good temper and good conduct of the vast crowd of invited ones, turned what might have become a sad tragedy into a most comical affair; and the various tales that kept flying about Paris for a few days of some of the incidents that took place gave rise to much laughter. We were amongst the more comparatively fortunate ones; for we left Paris at eight with some friends, and the carriage drove into the great courtyard of Louis XIV. at half-past ten; the fireworks were then going off, and as some horses near us began to rear, and windows to smash, we felt glad to be near the door of our entrance, and were borne up by the "Gulf Stream," as the *Figaro* calls it, of guests, and, as that paper says, "No one seemed to go up, no one seemed to come down, but by some extraordinary laws of mechanism hitherto unknown, one found oneself transported into the first drawing-room." We stayed there quietly, finding it impossible to traverse for some two hours the splendid *galerie des glaces*, which was certainly very magnificent, and get near the windows that looked over the gardens; and when we did reach them nearly all the electric light was over, and a violent gale of wind had extinguished the lamps. However, as the crowd thinned and melted away, we could admire the beauty of the scene, and as we drove back to Paris at six in the morning, we considered it very lucky in not having got into the tremendous crowd that made the staircase for some time a barrier of human beings. Some people, after waiting outside all night, never got in at all. One gentleman had put four horses to his carriage to arrive quicker, and he got back to Paris late in the morning, without nearing the palace gates. Confusion reigned everywhere. The Prince of Sweden came up with the crowd, instead of up the diplomatic staircase, and the Princess of Denmark was the only one who had the courage to come down the long "*galerie des glaces*," on the Marshal's arm, and after the fireworks were over. Madame de Mac-Mahon left Versailles by train in the middle of the night to attend the funeral of Monseigneur Dupanloup, at Orleans. As the morning broke, we were back in Paris; but leaving numbers who could find neither carriage nor cloak. However, the ball at the Ministry for Foreign Affairs, two days later, was perfection, the comfort of the guests being studied in every way. The Princess of Wales looked perfectly beautiful; and one heard on all sides expressions of admiration. The Prince has won golden opinions from all men for the energy with which he has worked to help insure the success of the British department here. I think that, on the whole, and notwithstanding some cavillers, the Exhibition has proved a success. For the mere sightseer, there was brought together under the vast building of the Champs de Mars the most entire and perfect collection of all that the world can produce in the way of science and art; and to the student and worker in every department tangible objects from all climes were brought, such as they had only read of in their books. To the philanthropist, also, the spectacle of the various nations, whose inhabitants have here commingled in fellowship, will have given pleasure, and certainly many old prejudices and dislikes will have been rubbed away; and it is more especially among the Americans that this feeling is to be noticed, for their pride in the great success of the "Mother country" seems unbounded. It is quite evident that between England and France the ties of amity are drawn closer. To France itself the Exhibition has given the opportunity to show the world what wealth and what vast resources a thrifty and economical people, like the French, have at their command, and how they have been able to rise elastic from their great disasters; and it has given them also the chance, whilst teaching much, to learn much. They keep as the memento of this great "show" the Trocadéro, which some are now proposing should be maintained as a vast conservatory for the very magnificent Tropical plants and trees belonging not only to the town of Paris, but to the various palaces.

Little by little, after a few last looks at the Exhibition, people are drifting homewards, and weary exhibitors will soon begin to pack up. Even the monster balloon, which has hovered so long over Paris, is to change hands; it is ceded by M. Giffard, and will soon be on its way to London.—VALE.

ST. ALBAN'S ABBEY.

THE NEW ROOF,—A SUGGESTION.

SIR,—Will you find me space for a few words at this stage? Perhaps they should have reached you before in order to stand a chance of being practically useful; but I have been hoping against hope that the last step might, after all, not be taken, and that the low roof might not be really superseded. The acceptance of the builder's tender seems to have suddenly changed the situation.

1. Is it absolutely—beyond all modification—settled that the high roof must run from the tower to the west wall? Why should it not be carried from the tower as far as the junction pier between the Early English and the Decorated work, and stop there? A low roof, not visible from below, would then cover Trumpington's five bays. The distance from the tower to the west face of the west wall is 284 ft. 6 in. This would be the enormous length of the great grey wall which may in a few months make a fresh aspect for St. Alban's Abbey. If about 114 ft. could be cut off in the way suggested, 170 ft. of high-pitched roof would be left,—which ought to be enough to satisfy the most exacting advocate for novelties.

2. It is agreed by this time that the high-pitched roof is to rest on a conclusion which rests on nothing,—but is still good enough in its way if applied within due limits;—thus, "we claim the right to deal with such buildings as we like, because we are a building committee." The old meaning of the word restoration may be considered superseded. It used to seem to mean,—putting back a building, as well as we could, into the state in which it probably was at one time;—a good deal of pains being taken to get to know what it had been or was likely to have been; and to have put back anything that was tolerably certain not to have existed aforetime would have been as painful as such a recital of the process to any one except a stage Irishman. We have changed all that, and now have only to do what we think right.

3. The advantages of the suggested arrangement seem to be obvious. The inordinate length would be got rid of. The puzzling problem of dealing with the great gable wall brought into existence at the west end by the long roof would never arise. There would be an opportunity for really original design in the western inclosure of the high roof;—not a wall of masonry,—but a construction of timber, which would require a special treatment to prevent its being thin and to secure its being grand and sober, and as well suited to the stone architecture around as the fourteenth-century architects would have made it, if they had thought right to deal in that way with the part of the nave. Restoration would in that case not have such a very bad signification. It would only mean putting on to old work something that, if the old men had been as skilful as we have shown ourselves, they would certainly not have omitted.

4. Everybody, when the conflict was hot, was so eager to hit his adversary that the building would have been absolutely forgotten in the shindy if from time to time peacefully-minded outsiders had not exasperated everybody by interference with the authorised combatants. Let it be taken that bygones are bygones, and that the Babel is to be entirely forgotten. Cannot victors and conquered join in securing a compromise, which shall avert some of the evil fate from the building they both admire? A becoming consideration for the scruples of the weak-kneed would allow one, for instance, to admit that the Normans probably put a high-pitched roof to their nave, and that we must do the same,—for some part of it at any rate,—as it has been

decided on and ordered. Will not the new restorationists be benevolent in return, and allow a bit of low roof somewhere in the length? As it would be wrong to ask once again for such a roof over the Decorated bays (which I fully believe never had any other at any time), might I ask this boon for the unfortunate bays further to the westward? S. F. C.

THE PRESENT POSITION OF THE CABMEN'S SHELTER MOVEMENT.

In previous numbers of this journal we have given special information as to the various places in which shelters have been erected.* We are now enabled, with much pains and care, to bring the account up to the present moment, but before doing so we desire to thank the various gentlemen, including clergymen, magistrates, merchants, and others, who have kindly given either the desired information or have obtained it for us. Without such assistance, it would not have been possible to gather together the materials from so many different localities for this general report. Two results of an indirect nature have been suggested by a correspondent, in connexion with this movement, viz.:—1. That the public should, without delay, demand some kind of shelter for themselves when waiting for (or leaving) cars or busses; and 2. That the Legislature should be asked to compel the various authorities and companies to make provision for these shelters, and also for all others required by persons exposed to the weather whilst waiting for the convenience of the public in streets or railway yards.

The information given in this series of general reports shows that these desirable reforms are attainable:—*e.g.*, in Cardiff, Bristol, and Great Eastern Railway Terminus in London, the railway companies have done something for the cabmen; but what more is wanted is, that the public should attend first to themselves,—not a great hardship, as they are great sufferers at present,—and then take measures to secure the aid of the Legislature.

Leeds (supplementary notice). — There are three shelters in Leeds at the railway stations, viz., one at the North-Eastern, another at the Midland, and the third at the Great Northern, for the accommodation of which rests the drivers pay a weekly subscription. The Midland shelter was formerly placed on vacant land opposite the town-hall, in Calverley-street, but on account of the building of new municipal offices on this site, the committee had to find another site, which, by the kind permission of the Midland Railway Company, has been obtained at their yard. The three shelters are being painted and repaired by Messrs. B. Steill & Son, painters, Leeds. Unavoidable difficulties of considerable magnitude have thus interfered with the movement in Leeds, as also, as will be seen, in Bradford.

Bradford, Yorkshire (supplementary notice).—There are two shelters here; one at the Lancashire and Yorkshire, and the other at the Midland, Railway Stations. The former was that which was originally at Christ Church, Darley-street, then at Manor-row, and lastly, at Old Market-place, the corporation ordering it to be thus moved on account of the narrowness of the streets; but there is no wish to blame the corporation for ordering these unpleasant removals, so damaging to the success of the movement. That at Midland-yard cost 100*l.*, and is smaller than the other, but, if anything, is a neater-looking erection. Its breadth is only 2 in. wider [than the extreme width of a cab. Mr. Arthur Priestman, of Manningham Lodge, Bradford, is the hon. secretary. Applications from other stands have been made for shelters, but until the difficulty as to placing them is obviated, nothing seemingly can be done to erect any more at present. The two shelters are very much appreciated by the drivers, who each pay 4d. a week for the use of them.

Wakefield.—There is one shelter here, placed at the principal cabstand in the borough, at the top of Westgate. Mr. W. Hartley Lee, J.P., of Wakefield, presented the shelter (as a memorial of his wife) to the Tradesmen's Association, vesting it in three or four members of its committee, they undertaking the management and keeping it in repair. The shelter has, we believe, been much valued by the men.

Coventry has one cabmen's shelter placed in the centre of the city in a wide open space called Broadgate. It was opened in November, 1875, and cost in all about 60*l.*, provided by voluntary contributions. It is maintained by the cabmen who use it, one of them acting as secretary. The movement may be regarded as successful, and unquestionably effective in preventing drunkenness among cab-drivers. The shelter is octagonal, 15 ft. by 8 ft., with gas-stove for cooking purposes, &c. It is mounted on four low iron wheels. Mr. William G. Tretton F.S.A., of Coventry (editor of the *Old Cross*, a quarterly journal), has given us information on the subject of the shelter movement.

Wolverhampton has three shelters, near the principal cabstands. Two of them were the result of a collection made by two ladies; the other shelter was the gift of a lady. The cost of each was 75*l.* The origin of the movement was a desire to improve the condition of the cabmen. The shelters were handed over to the corporation, but amongst the promoters in Wolverhampton it is an open question whether this plan is so good as the Birmingham method, which consists in managing the shelters by a private local committee. Gas and water are laid on, and the subscriptions are sufficient to defray expenses.

Walsall has one shelter, which was given by Mr. J. Brewer, of that town, timber merchant. It cost about 40*l.* Its size is about 8 ft., and is placed near the railway station. It is managed by the cabdrivers, and is self-supporting. It is considered to have reduced drunkenness. There is no prospect of extending the movement in Walsall.

Worcester has one shelter, which cost about 89*l.*, exclusive of stove and fittings. It is placed in front of the Shire Hall, Tything-street, and is managed by the drivers. They fill the windows, we are told, with flowers, which add much to its appearance, making it a really handsome and pleasant retreat. The City Council supply the gas gratis. The shelter is certainly a great success; but there has been, in some quarters, a feeling against the erection of shelters in the highways. The drivers of this city are a very steady and respectable body of men. The Sheriff of Worcester (Mr. Walter Holland) was the generous donor of the shelter.

Leicester has four shelters, the first of which was established in the station-yard, it is said, by the Midland Railway Company. The other three are placed respectively—one at Humberton-gate, another near the Free Library, and the third behind the Town-hall. That near the Free Library was presented by Mr. John Whitmore, of Leicester.

Ryde (*Isle of Wight*) has one shelter on the Esplanade. It is octagonal in shape, and ornamented; and contains a cooking-stove, the men keeping it clean. Mr. W. Jacobs, of Ryde, was one of the principal promoters. It cost about 160*l.* The honorary architect was Mr. Thos. Dashwood. The shelter is expected to be self-supporting.

Portsmouth has four shelters, viz., at Edinburgh-road, The Hard, Kent-road, and the Esplanade. They are handsome wooden erections; with coke stoves, &c. They are self-supporting, and are managed by a committee, of which Mr. Holbrook, Queen-street, Portsea, is the secretary. They have a tendency to reduce drunkenness, and are considered to have been successful.

Oxford had in June, 1878, one shelter, which originated with Mr. W. Ward, of Oxford, who had some difficulty in persuading the Local Board to allow it to be placed in St. Giles's,—one of the principal streets of the city. It cost about 70*l.*; and is fitted with gas-stove, water, &c.; the gas and water being supplied free by the companies. Mr. M. Mowbray was the architect, and Mr. Brucker the builder. The stand is noticeable as being one where the majority of the drivers are teetotalers. The shelter is much appreciated by the men, nineteen of whom use it regularly. It was opened in April, 1877. Mr. G. W. Norton, of 9, Woodstock-road, Oxford, is the hon. secretary. Amongst the subscribers was the Bishop of Oxford.

Bristol in 1875 had only five shelters, now it has the following number:—Fourteen wooden shelters, and one brick structure for the cabmen, and three wooden erections for the Bath-chairmen; with two new cabmen's shelters waiting to be placed in position by the City Council.

The shelter movement in Bristol has been very successful, being self-supporting. The shelters are managed by the drivers themselves, but assisted by Mr. G. Darling, who has been for twenty-two years connected with them in mission work. Drunkenness and sickness have greatly diminished since the introdnction of the shelters, and not a single instance, we understand, has been known of a cab-driver who has conducted himself so as to need the interference of the authorities of the borough. It may be interesting to note that twelve years ago the Great Western Railway Company gave the cabmen of Bristol, at the instance of Mr. Darling, a room at their station formed out of one of the arches. The company fitted it up with a gas-stove and table, &c., the men paying a subscription. It is pleasing to add that no complaint has ever been made to the Great Western Railway Company as to the conduct of the drivers at this station. We have reasons for concluding that this archway shelter was one of the first of its kind used for cabmen in England. It is still a controverted question as to which town had the honour of inaugurating the movement. Another interesting feature worth mentioning is that at this station there is a covered shelter for the horses. It is enclosed on three sides, and has plenty of room beneath for the cabs and horses. We cannot be far out in saying that there are very few places in the United Kingdom that have any provision for the shelter of horses so complete as that which is covered on three sides at Bristol. Eight of the Bristol shelters for cabmen were given by private munificence, amongst the donors being Mr. Henry Taylor, of Clifton, who gave the first shelter, and Mr. Hodgson, M.P. for the city, who gave another. The others were erected by subscription. The size of the shelters varies. Some can accommodate six; others twenty-four person. The cost ranges from 50*l.* to 90*l.* Most of the shelters have gas-stoves, water, &c.

Newport (*Monmouthshire*). — There is one shelter here, near the railway station, which was opened in December, 1875, and was presented to the Corporation by Mr. Cordes, M.P. for the borough. It cost about 100*l.*, and is furnished with a gas-stove, &c. The weekly subscriptions from the cabmen are more than sufficient to defray all expenses. The shelter is much appreciated by the men, whose habits have decidedly improved since its erection. Mr. H. Collier, oil-merchant, Newport, is still the indefatigable hon. secretary.

Cardiff.—Besides the two shelters noticed in the *Builder* of January 5th, 1878, there has been this summer another erected in Cardiff. It has been built by the Great Western Railway Company, Mr. T. J. Allen, superintendent at Cardiff, deserving praise for his exertions in recommending its erection to the directors. It is a very comfortable shelter, with an office,—apart from the drivers,—for the cab-inspector. It has gas and water supplied free by the directors. The men pay a weekly subscription. The shelter is expected to be a success in many ways. It is hoped that the example of this company will be imitated by others. Up to the present very few instances are known of companies introducing shelters in their yards, as just mentioned.

SCOTLAND.

Edinburgh.—In 1873 there were six shelters in this city; now there are sixteen. The first was established in 1859. They have been successful, and have added much to the comfort of the drivers, who manage the shelters themselves. The shelters generally are neat structures, but they have been objected to by some residents in the neighbourhood of some of the stands, as spoiling the appearance of the streets. The success of the movement in Edinburgh reminds us that Dean Ramsay spoke, in 1866, of the respectable position maintained by the cab-drivers of that city. If the date of the erection of the first Edinburgh shelter be as given above (1859), then this city was one of the first to have shelters in the United Kingdom.

IRELAND.

In the *Builder* of April 13th last we alluded to a useful movement set on foot at *Dublin*, organised by the Cabmen's Shelter and Temperance Associations, for the purpose of providing the public with coffee-stands in the streets of the city. We understand that there is something of the same kind in operation at *Belfast*, but we have not yet succeeded in obtaining accurate information, though it has been promised.

* See *Builder* of January 5 and April 13, 1878, for the articles containing notices of movements in the fol'owing places,—London, Cardiff, Bradford, Scarborough, Halifax, Liverpool, Manchester, Leeds, Birmingham, Hull, York, Huddersfield, Sheffield, Bath, Guernsey, Glasgow, Dundee, and Dublin.

OLD LONDON.

Sir,—In the *Builder*, No. 1703, vol. xxxiii., I described some ancient buildings then or lately extant in the metropolis. The vicinity of Chancery-lane is assuming a new architectural aspect, not only with reference to the new Law Courts, but otherwise.

The new building described and engraved recently in the *Builder*, and the new buildings which are now in course of erection on the site of the houses known as Old-square, denote that the ancient houses are becoming extinct. In Holborn also, and in Chancery-lane, new and high houses now occupy the sites of plainer buildings which have been removed. It appears from Spilsbury's useful description of Lincoln's Inn, which requires a ground-plan to elucidate the text, that in the twenty-second year of Queen Elizabeth the Society of Lincoln's Inn became possessed of the property, which they retain; and the old buildings were erected between the reigns of Henry VIII. and James I., having as the eastern limit New-street, now Chancery-lane, not paved until 1542. The gate-house was erected in the reign of Henry VIII.; and the oaken doors now or lately extant were placed there in 1564. The old hall was erected A.D. 1506, and the louvre for carrying off the smoke was placed on the ridge of the roof in 1552. The arcade, being a connecting corridor to the Vice-Chancellor's Court, was built in 1819, when this Court was added to the west of this hall; and in 1841, the buildings westward of the gateway were built, for the two Vice-Chancellors, Bruce and Wigram. One of the chambers in the vicinity, No. 13, belonged to Thurloe, the secretary of State to Oliver Cromwell, and Lords Mansfield and Campbell occupied rooms in this ancient gateway, as law students. In the years 1625, 1652, 1706, and 1819, alterations were made in this hall, and it was lengthened some 10 ft. It was until lately divided by a partition, so as to form two courts. The hall contains the late Sir R. Westmacott's admired statue of Lord Erskine. The new hall and library, 1844, have superseded the old hall, but the legal associations connected with the latter cannot be effaced. The chapel was erected and consecrated in the year 1623; the foundation-stone having been deposited in 1621 by Dr. John Donne. Inigo Jones was the architect probably, and, according to the Harleian MSS., No. 5,900, he built it "after the Gothick manner, in imitation of that of St. Stephen's at Westminster." Pepys, in his "Journal," mentions his visit to the new garden at Lincoln's Inn, and to the chapel, to walk under it, then a common practice. The buildings known as New-square were erected upon land known as the Coneygarth or Cotterell Garden, being eleven houses of brick, built by Mr. Henry Serle, of Lincoln's Inn, with an elliptical arched way, about 18 yards long, the average depth of the houses, and it is about 9 ft. wide. Two of these houses have been consumed by fire, and other buildings occupy the sites, viz., No. 2 in 1849, and No. 10 in 1752. The column with its sundial in the centre of the square have been removed, and in 1845 the space was enclosed by railings. The east wall of No. 11 (1691), the north wall of No. 11 (1694), and the north wall of No. 1 have stone tablets, with inscriptions. These are contained in Spilsbury's volume. Stone-buildings, near the Old Buildings, was erected originally in 1780, by Sir Robert Taylor, being an instalment of a larger design which was abandoned. In 1845, Mr. Hardwick in the southern wing is stated to have followed the original design, so that the two wings conform with each other. In the year 1819 it was intended to build a chapel at the east side of Lincoln's-inn-fields, but the idea was not carried out. In 1844 the new Hall and Library were completed, and the extent of the garden was curtailed.

In the time of Queen Mary a walk was made in the Coneygarth or Cotterell-garden, described in Mr. Parton's "History of St. Giles's," &c., 1822. The garden was enlarged and improved in 1663, as is mentioned in Pepys's "Journal" for 27th June, 1663. In the erection of the original garden-wall, Ben Jonson may have been employed as a labourer, assisting his father-in-law as a bricklayer or as a mason. The maps in Parton's volume denote the sites of the houses in Lincoln's-inn-fields and New-square. The former were erected generally about the middle and towards the end of the seventeenth century. Inigo Jones is credited as the architect of several of the houses on the west side, north of the archway, and this row was erected before the north and south rows, named Holborn and Portugal rows, respectively. I have seen a petition, dated in 1656, complaining that one William Newton interfered with the rights of the people by his erections in Lincoln's-inn-fields, and which prayed that he might be prevented from building. I deem it to be probable that the houses Nos. 34, 44, and 46, are the original houses in Portugal-row. The houses were completed in the seventeenth century; but the square was not enclosed until 1735. Lady Cowper, in her diary, alludes to her seeing persons crossing this area, on the night when the aurora borealis was visible, 1715; and, later still, Sir J. Jekyl, Master of the Rolls, was injured by a horse while crossing this area. It appears from an advertisement that Orator Henley's Chapel was situated at the south-west corner of this area, formerly Fickett's Fields or Croft, and which extended for some distance southward. The mansion, &c., of the Earl of Lincoln extended from the south end of Stone-buildings to the south end of Old-square, Chancery-lane being the boundary eastward. The mansion, &c., of the Bishops of Chichester extended from the end of Old-square towards the south-east, as far as the ground now named Chichester-rents. In Holborn, De Chesney, Bishop of Lincoln, A.D. 1147, erected a palace, which subsequently was named Southampton House. It was near the Old Temple, in Holborn. The plans in Parton's volume explain these sites respectively. In the *St. James's Chronicle*,—June 6 to 9, 1761,—it is stated,—"A plan for a new street, from the end of Serle-street to Temple Bar, is concerting, a thing long wanted, as the avenues to Lincoln's-inn-fields are bad. It is also said, that to make it complete, Turnstile will be widened, so as to admit of carriages passing." Early in the reign of Charles I., two persons, named Williams and Dixon, endeavoured to obtain an official permission to build an amphitheatre in Lincoln's-inn-fields, for the exercise of martial discipline, but the permission was refused, as it had been in the reign of King James I. In *Notes and Queries*, s. 5, v. 4, the large house at the north-west end of Lincoln's-inn-fields is described, formerly the residence of the Dukes of Newcastle, erected A.D. 1686, and occupied by Lord Somers, &c. (Strype, book iv., p. 75). Another lord chancellor (Northington) resided here until 1766, when four peers resided in these fields. Since then, Sir W. Blackstone, Lord Kenyon, Mr. Justice Chambers, Mr. Spencer Perceval, and the late Baron Gurney have resided here. During the Regency, several houses in the south row were removed to make way for the College of Surgeons. Northouck states, A.D. 1773 (Hist. of London, p. 151), "several of the buildings round the square, originally constructed by Inigo Jones, still remain, on the south and west sides, as also on the south side of Great Queen-street."

In 1659, Messrs. Cooper, Henley, and Finch, with other owners of "certain parcels of grounds in Lincoln's-inn-fields," were licensed to build "on three sides of the same fields," subject "to the payment of one year's value for every such house, and that the residue might be conveyed to the Society of Lincoln's Inn, for laying the same into walks, &c." But the area does not appear to have been inclosed until A.D. 1735, and during the Regency this inclosure was improved considerably, according to its present state.

Knight's "London," vol. v., p. 385, contains an engraving of an ancient house extant A.D. 1799, at the corner of Fleet-street and Chancery-lane, built in the reign of Edward VI., and engraved in Smith's "Antiquities of London." In vol. iv. of Knight's "London," Lincoln's Inn Hall (1843) and the Gateway, and Gray's Inn Hall, are engraved.

The Rolls Chapel, in Chancery-lane, originally was erected by King Henry III. on a Jew's house, forfeited to him in A.D. 1233. When the Jews were banished, the Master of the Rolls possessed this house and its chapel by patent. The Public Records were kept here formerly,—accrued since the reign of Richard III. inclusive; and it appears that then,—1773,—"at the north-west angle of this chapel was a bench where the Master of the Rolls heard causes in Chancery, and the court business was then transacted in the chapel." In Boyle's "Chronology," p. 273, is this paragraph, viz., on the 27th of October, 1776, "the new Chancery Courts were opened in Chancery-lane." This paragraph appears to refer to the buildings in the Rolls-gardens. Mr. Northouck, in A.D. 1773, stated that the house of the Master of the Rolls had been lately rebuilt at the public expense. The chapel contains at the east end the handsome monument of Dr. Young, Master of the Rolls A.D. 1516. According to this work, this chapel, built "of brick, pebbles, and freestone, is 60 ft. long and 34 ft. in breadth, the doors and windows are Gothic, and the roof is covered with slate." The inscriptions upon some of the monuments require to be recut, or they will be effaced ere long so as to be illegible.

C. C.

THE CROSSING OF THE THAMES AND THE CONTINUANCE OF THE COAL AND WINE DUTIES.

We reproduce with pleasure the announcement that the Metropolitan Board of Works have put themselves in communication with the City authorities as to the plan of a new bridge over the Thames. The considerations which we adduced as to the impropriety of independent and adverse action in this matter will be remembered. We further hope that nothing will be done in undue haste. The sum of money which it is proposed to expend is serious. It is essential that the design adopted shall be manifestly shown to be the best, before such a sum is laid out. But at the present moment we are only beginning to collect statistics on the subject. The opening of Waterloo Bridge has already doubled the traffic over that line; foot-passengers having increased from 94,635 to 194,023, and vehicles from 26,046 to 46,600. This is as might have been expected. But we want also to know what has been the effect of the change on the traffic of the bridges east of Waterloo.

After reading Mr. Barlow's little pamphlet, we made a careful inspection of the sites, and came to the same conclusion with the writer that there is no appearance of much probable traffic in the locality. The lines of transport do not tend to such a concentration as to appear to call for a bridge near the Tower. We must remember that two tunnels have been failures, as far as traffic is concerned, though each of them was a great triumph in an engineering sense of the word; and we hear little of the steam ferry, the opening of which was announced some time ago with so much *éclat*. Can anybody tell us anything about it? What is, in our opinion, the proper thing to do, is to ask for a report from an entirely independent engineer as to the demand for a bridge, and the best locality for the same. If that report be favourable, the question of the kind of bridge should then be inquired into, and an architect should be associated with any reporter on that subject. We repeat that we speak without having been yet able to form a definite opinion on any point but one, and that is, that the proposed spiral ascent has not as yet had any case made out in its behalf. It is not too much to say that if, having given some considerable degree of attention to the matter, we feel that as yet the controlling facts have to be collected and brought out in evidence, it is quite impossible that any public body can be in a position to give a sound decision on the matter as yet. We want traffic returns of a very complete kind. We want returns illustrating the history of the various attempts made,—in the case of the Thames Tunnel, the Tower Tunnel, and the steam ferry, to divert traffic. Why did these fail? or what did they effect? Then we want to see what change is actually produced in the trans-river traffic by the opening of Waterloo Bridge. It will take months to collect this evidence. It is a most valuable source of information, and available at the very moment when it is most wanted. It would be folly to attempt to legislate without procuring and digesting this information. We are quite disposed to believe that a new bridge over the Thames is desirable. But we are quite sure that the information which would allow any competent engineer to give a decided opinion as to, first, the advisability, secondly, the locality, and thirdly, the nature, of the new crossing, has yet to be collected. We only trust that the bridge will not be built by way of experiment, which seems to be what is at present proposed. Purses after all have bottoms,—public purses as well as private.

THE OAK OF THE BIBLE.

Sir,—Will you allow me to ask what tree the oak of the Bible was? Writers appear to differ as to its botanical name or class.

Student.

COWL EXPERIMENTS.

The proprietors of cowls, and their friends, would have us fill half our pages with their statements, but we must, of course, decline. Mr. Buchan writes again to accept Mr. Banner's challenge for a trial, but for a smaller stake. These gentlemen, if they wish to bring the trial about, must manage it for themselves.—— Several persons, notably Messrs. Colls & Sons, have sent us testimonials in favour of Mr. Banner's system. We cannot insert them.—— A long letter from Mr. James Howorth, in reply to Mr. Buchan's letter of the 12th ult., also includes testimonials to the merits of the Archimedean ventilator. In this case, as in the others, we must give the same reply.

DUKE STREET U.P. CHURCH, GLASGOW.

Contracts have been entered into for the erection of a new church for Duke-street congregation. The new building, which has been designed by Mr. Honeyman, will occupy the east side of a new square, near the cathedral, recently formed by the City Improvement Commissioners, clearing away a large number of old dwellings of the worst description.

It may be interesting, as indicating the unsettled state of the building trade, to mention that the highest tender (for mason's work only) was 9,741*l.*, and the next 9,266*l.*, while the lowest two, made on the same quantities, were 6,916*l.* and 6,498*l.*

FRAUDULENT "TIME-SHEETS."

At the Surrey Sessions, last week, Richard Williamson, William Baldry, and Frederick Knight were indicted for conspiring by divers false pretences to defraud Benjamin Ebenezer Nightingale. On other counts they were indicted for attempting jointly and severally to obtain money from the prosecutor by false pretences.

On being first arraigned Williamson pleaded not guilty, but subsequently withdrew his plea and put in a plea of guilty. The other prisoners pleaded not guilty.

Mr. Lyon stated the case for the prosecution. He said the prosecutor was a builder carrying on business on the Albert Embankment, and the prisoners were in his employment; Williamson acted as foreman of a job in Westminster Bridge-road, and the two other prisoners worked under him as carpenters. It was Williamson's duty to prepare a sheet every week showing the time of each man under him. On the 27th of September he prepared a sheet in which the prisoners Baldry and Knight were represented as having worked sixty hours and a half, and he gave them tickets on the pay-clerk entitling them to 2*l.* 5s. 4½d. for their week's wages. On presenting their tickets next day they were given into custody, the prosecutor having discovered that they had not been at work for him at all that week, but had worked for another employer. Subsequently the prisoner Williamson was given into custody for conspiring with the other two to defraud his employer.

Evidence having been given in support of counsel's statement,

Mr. Lilley addressed the jury for the defence. He contended that the prisoners Baldry and Knight, having acted under the authority of their foreman, who had lent them to another firm, and not having been discharged from Mr. Nightingale's employment, and having done the work allotted to them, they were perfectly entitled to demand their wages, and they had committed no offence in doing so.

At this stage the jury stopped Mr. Lilley, and said they were unanimous in the opinion that the prisoners were not guilty.

The prisoners were then discharged, and the prisoner Williamson was then directed to stand forward.

Mr. Lilley addressed the court in mitigation of punishment, and called witnesses as to previous good character.

The Court sentenced him to twelve months' imprisonment with hard labour.

At the Thames Police-court, on Saturday, Dunken Redford, formerly a foreman in the service of John Johnson, a builder, of St. Ann's Wharf, Limehouse, and William Constable, a journeyman carpenter, in the same service, were charged on remand with conspiring to defraud their employer of certain sums of money, alleged to have been earned as wages, but which were not gained by *bonâ-fide* labour.

Noxious Effluvia in Southwark.—Messrs. William Potter & Son, Green-street, Friar-street, Blackfriars-road, have been summoned before Mr. Partridge, at Southwark Police Court, by Mr. Ross, an inspector in the service of the Metropolitan Board of Works, for causing a nuisance by not using proper and efficient means to prevent the escape of noxious smells in carrying on their business of bone-boilers. They were fined 20*l.* and costs. Mrs. Ellen Hurst, carrying on business in the same locality, has been summoned, at the instance of the St. George's Vestry, for a like offence, and fined 5*l.* and costs.

THE HIGH-LEVEL BRIDGE QUESTION.

Sir,—Your correspondent, "Cocker," wishes to know why I reckon the additional strain of 20 lb. for what he calls the "slight inconvenience" of drawing a ton upon a spiral curve of 1 in 40, instead of upon a straight hill of the same gradient. Let me remind "Cocker" that 20 lb. so added is only 19·8 per cent. additional to Mr. Matheson's calculation of straight hill strain. And Mr. Matheson goes on in his letter of the 21st ult. to confirm what I said in my letter in the *Builder* of September 14. He says,—"Horses cannot pull their best when climbing on a curve; the haulage force would have to be increased even in a greater proportion than that above mentioned." I have no better reasons to offer for my reckoning than what I stated in the letter of Sept. 14. I think that an objector (especially one rejoicing in the *nom de plume* of "Cocker") should meet figures by figures, and not indefinite terms, by which he negatives the positions of others without taking one himself. Unless "Cocker" puts his "slight inconveniences" into avoirdupois pounds, ounces, drams, or grains, I do not see how the relative quantities of "water" that our "arguments" "hold" can ever be determined. I would suggest to "Cocker" to state the amount he believes in as being nearer correct than 106 lb. total, or 20 lb. additional; and then leave the question, until decided by experiment, or more conclusively established evidence than either of us seems to possess.

There are two or three points of this spiral curve inquiry which, I think, require mentioning as a part of a full debate of it. In reference to experiment or known facts, I would observe that the trial for comparison must be upon a spiral road and straight hill; the difference of drawing upon a level circle and straight upon level ground would not represent the case. In reference to my addition of 20 lb., I wish to explain that I intended to apply it only to carriages of four wheels; in two-wheel carriages, being shorter, the difference would probably be about the rate of 12 lb. The third point I beg to notice is, that it is not at all clear what Sir J. Bazalgette means by 1 in 40. If he means 1 in 40 along the centre of the spiral roadway, Mr. Matheson's estimate represents the case. But if he (Sir J. B.) means that the outer-edge gradient would be 1 in 40, and the spiral curve road has a total width of 60 ft., like the bridge itself, the centre or mean road gradient would be 1 in 32. If the spiral path is 36 ft. wide, with carriage roadway only, the mean gradient would be 1 in 35·8. And the mean strain (reckoning per centage proportion) would be, upon Mr. Matheson's calculation, for 60 ft. wide road,—straight hill, 107½ lb.; total, 129 lb. For 36-ft. road only,—straight hill, 100 lb.; total, 120 lb.

"Cocker" also wishes to know what I mean by the "multiplied force of three and a half." My reply is, that calculation is founded upon the elementary truth in mechanics, "that what is gained in power is lost in distance. I multiply the supposed actual length of the spiral road by *three and a half*, because its resistance is reckoned at that amount compared *to one* on a level road.

Now, a few words on the height of the Tower bridge. It is an axiom of philosophy, that of two evils or difficulties "we should choose the least." But in this case it is probably true that the least evil is on the side of the greatest difficulty. I think with Mr. Matheson that the great inconvenience of a high-level bridge to the thousands of human beings and horses for whose benefit it is to be made, outweighs the disadvantage to wharfingers and those connected with the shipping interests; and it can hardly too often be pressed on attention that if the Tower bridge is not tolerably convenient it will not be used, and London Bridge will *not* be relieved. C. G.

CONCRETE AT CLARE COLLEGE LODGE, CAMBRIDGE.

The *Cambridge University Reporter* (published by authority) for October 24th, 1878 (No. 258), contains an important and serious correspondence on the subject of the failure of parts of a concrete roof and floors at Clare College Lodge, built by Messrs. Bell, under the superintendence of Mr. Fawcett, architect. Mr. Blomfield and Mr. Rickman first reported, with great moderation, as to the defects in the construction, but Mr. Fawcett, demurring to parts of their report, called in Mr. Baldwin Latham, and the ultimate result (opinion seems to have strengthened as the examinations went on) is, we are sorry to learn, that the roof and all the concrete floors above the ground-floor are to be removed and replaced by wood. The serious question has arisen as to the respective liabilities of the architect and the University, and this has been referred by agreement to the President of the Royal Institute of Architects (Mr. Chas. Barry), who had not reported when the correspondence was published. In reading the paper another question certainly presents itself,—the liability of the contractors; but this would probably have to be settled separately, as between them and the architect, afterwards.

A Sewerage Scheme for Wigan.—The Wigan Town Council have adopted a scheme, prepared by Mr. Brindell, C.E., for the disposal of the sewage of the town by irrigation. At present the sewage is turned into the river Douglas, and the Local Government Board have granted a further order, protecting the town for three months from the 17th Oct., from the provisions of the Rivers Pollution Prevention Act, 1876. To carry out the scheme arrangements have been concluded with the Earl of Derby for a sewage farm at Dewburgh, seven miles distant from the present outfall. The total cost of carrying out the scheme is set down at 62,544*l.*

IS A BRICKLAYER AN ARTISAN?

Sir,—In a leading article which appeared in the *Daily Telegraph* of the 17th ult., occur these words:—"An English artisan, or a bricklayer." Now, sir, I fail to see why a bricklayer is not an artisan. I assume that all skilled workmen in the building trade generally would, as a body, be called artisans, and that the fact of this body being divided into separate branches does not necessarily deprive either of those branches of the right to be called artisans.

True, in years gone by, the rather questionable habits of not a small number of the craft brought down upon the bricklaying branch generally a certain amount of disrepute, and people, in consequence, were too prone to look upon a bricklayer as outside the pale of respectability; and although happily that has all changed (at least the causes have disappeared), there are still some who cannot help thinking that a bricklayer must of necessity be a blackguard. But even were it so, that can have nothing to do with his skill as a workman; consequently, he would be an artisan all the same.

Moreover, in the present day, brickwork has become one of the most important, and, in cases not a few, the leading feature in building construction; and although the fact may not, perhaps, be so widely known, it is nevertheless true, that a largely increasing number of builders,—ay, and some architects too,—willingly avail themselves of the services of bricklayers in whom to confide the chief superintendence of their works.

Then, surely, they at least are not unworthy the name of artisans. J. W.

NEW HOSPITALS.

Peterborough.—At a recent meeting of the Peterborough Town Council, Mr. J. W. Walshaw, the surveyor, produced plans for a two-storied hospital to be erected at Dogsthorpe. After some discussion, it was decided that the surveyor should prepare estimates and specifications on the plan produced, and also for a building with a ground-floor only.

Lincoln.—The new Lincoln County Hospital was opened on the 1st ult. The group of buildings of which the institution consists comprises (according to the *Lincolnshire Chronicle*) a central or administrative block and two pavilions,—all being connected by a corridor, 10 ft. 6 in. wide. The back portions of the wings or pavilions are not yet built to their complete design, but they can be added to at any time to meet the requirements of an increasing population, without interfering with the parts already finished, or requiring any enlargement or alteration of the administrative offices. As at present constructed, the hospital provides accommodation for about 110 in-patients, but after the pavilions are completed there will be ward accommodation for about 180 patients. The central block consists of five stories, a half-basement story sunk about 6 ft. below the surface, and resting on the solid rock, and four stories above. The pavilions east and west of it are only two stories in height, but in consequence of the slope of the ground are raised 6 ft. above the surface at their lower ends. The central block contains, besides spacious entrance-hall, porter's and receiving rooms, surgery, and examination-room, a medical officers' consulting-room (to be used as a library), an accident receiving-room, with private apartments for the resident surgeon. In the rear is an operating-room. The first story contains matron's room, linenry, nurses' day-room, chaplain's room, and a chapel. This chapel is 44 ft. by 24 ft., and the chancel 11 ft. by 11 ft. On the second-floor are separate dormitories for nineteen nurses and probationers; whilst the third consists, for the most part, of a series of wards for children, with nurses' rooms attached. The basement comprises culinary offices, detached boiler-rooms, and cellarage. The pavilion on the east side, appropriated to male patients, consists at present of two wards, 88 ft. long by 26 ft. 6 in. wide, and two wards, 23 ft. by 15 ft., accommodating in all fifty beds. A nurses' room and scullery are attached to the large wards, with inspection windows commanding all the beds. At the extreme ends of the large wards are octagonal turrets, measuring 10 ft. internally each way, and these are cut off from the wards by lobbies, 5 ft. square, and provided with double doors and a window on each side to secure constant cross-ventilation,

The beds in the large wards are arranged in pairs between the windows, and are symmetrically placed along each wall, the width between each bed being 4 ft., and between each pair of beds 5 ft. 6 in. The west pavilion, appropriated on the upper story for female patients, is arranged in a similar manner to the east pavilion, the only difference being that the lower story is devoted to out-patients. This department is, however, distinct from the hospital proper. There are food-lifts, supplied by Waygood, in each block, and a separate coal-lift in the centre one. The warming of wards, rooms, and offices throughout is by means of Boyd's patent stoves, with descending flues; and of the corridors, staircases, and chapel, by Bacon's hot-water tubes. The baths and sinks are supplied by Boyd. The external walls are built hollow, being 1ft. 8 in. thick, with a clear space of 2 in., tied together at regular intervals with wrought-iron ties at every fourth course of brick. The roofs are covered with green slates. The Ancaster stone dressings were obtained from Thompson's quarries, and the terra-cotta panels from Blashfield's. The bricks were supplied by Messrs. Swan & Bourne. The outbuildings to this complete establishment consist at present only of a mortuary and *post-mortem* room. The laundry and washhouse, and entrance-lodge are yet to be provided. The architect is Mr. Alexander Graham, of London. The contractors for the work were Messrs. Barnes & Wright, builders, of Lincoln. The total cost of the hospital will be 30,000*l.*

Eccles.—At a joint meeting of members of the Barton Local Board and Rural Sanitary Authority, held recently, the clerk reported that the Local Government Board had approved of the plans, without alteration, prepared by Mr. L. Booth, architect, Manchester, for a hospital for infectious diseases at Peel-green, for Eccles and district, at a cost of 3,000*l.* The hospital will be erected conjointly by the above urban and rural sanitary authorities; it will consist of two wings and an administrative block, and will find accommodation for twenty beds when complete; but for the present it is only proposed to erect one wing and the necessary offices. The clerk was instructed to ask permission from the Local Government Board to advertise for tenders for the erection of the hospital, prior to one of their inspectors holding an inquiry into the matter.

Shrewsbury.—The plans of Mr. C. O. Ellison, architect, Liverpool, have been selected by the building committee for the new Eye, Ear, and Throat Hospital, at Shrewsbury. The new Hospital will be in Murivance, and the principal front will face the proposed new bridge road, the committee having secured to themselves certain powers in regard to that land in the probable event of the bridge not being erected. The institution itself will consist of two divisions,—one for the outdoor patients and the other for the indoor patients. The proposed outlay is 6,000*l.*

Salford.—The Guardians of the Poor for the Salford Union are intending to erect permanent hospitals and infirmaries for 600 patients, together with all the necessary outbuildings and accessories on the new site at Hope, near Eccles. The Board have unanimously appointed Mr. L. Booth of Manchester, as their architect to design and carry out the whole of the intended works.

CHURCH-BUILDING NEWS.

Aldershott.—On the 14th ult. the Bishop of Winchester consecrated the new church at Aldershott. The church is dedicated to the Holy Trinity, and comprises on plan,—nave and chancel, 112 ft. 6 in. long, the width across nave and aisles being 57 ft. The height from floor to apex of roof in the nave is 57 ft.; height of chancel, 48 ft. The style is Early English. The materials are Bargate stone facings and Bath stone dressings. The total cost is 6,300*l.* Sittings are provided for 700 persons. The architect is Mr. Sidney Stapley, of Farnham, and the contractors Messrs. Martin, Wells, & Co., of Aldershott.

Morwenstow.—An appeal is being made for funds for the restoration of the interesting Norman church of Morwenstow, on the Cornish coast. The church consists of nave, chancel, north and south aisles, and a lofty tower with battlements and pinnacles. The nave stands in much need of restoration, for the mullions of many of the windows are either much damaged or altogether gone, and some of the windows are half blocked up with bricks. The piscina, of simple Norman work, is on the south side of the chancel, and stands on a semicircular arch in the wall, which had been blocked up and plastered over until it was opened and restored by the late vicar, Mr. Hawker. The interior of the church is actually green, and in some places slimy, with damp. The flooring of the seats is much broken away and very rotten, although the finely-carved ends are well preserved. The oak screen which separates the chancel from the nave belongs to the same period as the seats, and is perfect, with the exception of the old gallery-loft. Lord Clinton, as lay rector, has undertaken to restore the chancel.

Portswood.—The chancel just added to Christ Church, Highfield, Portswood, was consecrated on the 25th ult. It extends 28 ft. clear eastward of the old building, with a width of 48 ft. There is a row of arches on each side, supported by clustered columns, with carved foliated capitals; the columns supporting the main chancel arches are square, and also have carved capitals. Besides the building of the chancel, the old pews have been removed, and the church re-seated, under an arrangement which provides a centre aisle, with benches of pitch pine; the heating arrangements have also undergone revision, the pipes being now laid in channels instead of above ground as formerly. The aisles, which were originally laid with Purbeck stone, have been re-paved with Architectural Pottery Company's tiles from Poole, but Minton's tiles have been used in the chancel. The organ has been removed from under the tower to the chancel north aisle, the space thus gained being appropriated to sittings; the pulpit stands at the end of the centre aisle. The various works have been carried out from the designs of Mr. Colson, the diocesan architect, Winchester, by Mr. W. H. Chapman, of Woolston; the heating and gas fittings being entrusted to Messrs. Lankester & Son. The total cost has been close upon 4,000*l.*

Dunston.—The Bishop of Lichfield has consecrated a new church at Dunston, near Penkridge, erected at the sole cost of Captain Perry and his sisters in memory of their father. It replaces an older church, and consists of nave, chancel, and transepts, and at the western end is a tower surmounted by a spire, the style adopted being that of the Decorated period of English Gothic architecture. From the high road the church is approached by a terrace and flight of steps, and entrance is obtained under the tower. There are a considerable number of carvings in the church, which are the work of Mr. Catby, of London. All the windows are of grisaille glass, and are variously traceried. Mr. W. Dalton Griffin, architect, Wolverhampton, prepared the plans; and the work has been carried out under the personal supervision of Mr. F. C. Perry, by workmen whom he engaged.

SCHOOL BOARD SCHOOLS.

Rugby.—Two new Board schools have recently been completed near Rugby,—one at Newbold-upon-Avon, and the other at Long Lawford. They each possess the same amount of accommodation, viz., for 130 children, with a schoolmaster's house attached. The school is a mixed one, 42 ft. 6 in. by 18 ft., with open-timbered roof, and an infants' school, 19 ft. by 15 ft., which can be used also as a class-room. There are separate entrances for boys and girls. The whole is fitted up with lavatories and earth-closets, provided by Messrs. Moule, of London. The schools are heated by Gill stoves and Galton grates, and ventilated on Tobin's principle. The house contains living-room, kitchen, offices, and three bed-rooms. The whole, including boundary walls, playgrounds, and all complete, has cost about 1,700*l.* for each school, and has been carried out by Mr. W. B. Heap, builder, of Dunchurch, near Rugby. Mr. James N. Crofts, of Liverpool, was the architect.

Horsham.—New Board schools at Horsham were opened on the 26th ult. They were commenced in August last year, the architect being Mr. Livvock, London, and the builder, Mr. Rowland, Horsham. Over 4,000*l.* has already been expended in the erection, exclusive of a new house for the master now being constructed at an additional cost of 500*l.* The schools are situated at a convenient point where the East Parade becomes a continuation of the Brighton-road. The style is Gothic, the walls being of red brick with stone facings. The rooms include the boys' school, which is 60 ft. by 20 ft.; the girls' school, 40 ft. by 20 ft.; the infant school, same size; and several class-rooms, 20 ft. square.

STAINED GLASS.

Surbiton.—The new house of Mr. Wilberforce Bryant, at Surbiton, has been filled with stained glass, from the suggestions of Mr. Rowland Plumbe, architect, comprising selections from Ovid's "Metamorphosis," sonnets, events of local history, such as the Coronation of King Athelstane at Kingston, events from the life of Robert Bruce, &c. Messrs. Gibbs & Howard were the artists.

Babbacombe.—A stained-glass window has been placed in the boudoir of Cliff Villa, illustrating "The Adventures of Alice in Wonderland." The tale is told in ten separate lights, each containing an adventure. The work has been done for the Right Hon. Cowper Temple, M.P., under the personal superintendence of his architect. Messrs. Gibbs & Howard were the artists.

MASTERS AND MEN.

Edinburgh.—The strike among the operative masons of Edinburgh has now closed, the masters not connected with the Master Builders' Association having on Monday conceded the 7½d. per hour. Operations have, accordingly, been resumed at the New Medical School and other new buildings which were affected by the strike. Since the month of May the wages of masons in Edinburgh have been reduced 1½d. per hour.

Leith. — On the 24th ult. Messrs. Scott & Best, contractors for the new dock works, informed a deputation of workmen that they were perfectly willing to accept any decision which the Masters' Union might come to on the question of wages. The firm further promised their workmen that if they resumed work at the rate of 7d. per hour they would be repaid any sum which might be due to them if the decision in favour of the payment of a higher rate was given. The men refused these conditions, and came out on strike.

Perth.—The Perth masons commenced work on Monday at a further reduction of ½d. per hour, the present wages being 7d. and 7½d. per hour.

Liverpool.—The Liverpool Master Builders' Association have found it necessary to discuss and revise their rules with the *employés.* This was done at a meeting held last week, when it was decided that that part of the mutual code with the operatives providing that any notice of alteration should expire at a certain season of the year, should be expunged. It is understood now, therefore, that notice of alteration in the arrangements with the men can be given at any time. At the same meeting the advisability of readjusting the scale of wages, &c., with the operatives, was talked of, it being thought that the depression of trade that had arisen within the last few weeks, and was not likely to soon disappear, necessitated that course. The various departments of the building trade were called together in consequence of this, and the following results arrived at:—*Masons,* a reduction of a penny per hour, and an increase in the number of working hours from 49½ to 55 per week; *bricklayers,* a reduction from 9d. to 8d. per hour, the hours to remain as at present; *plasterers,* a reduction of a penny per hour, and an increase of hours from 49½ to 55 per week; *joiners,* a reduction from 8½d. to 7½d. per hour, the hours to remain the same; *plumbers,* a reduction of wages from 8½d. in summer, and 9d. in winter, to 8d. all the year round, hours to remain the same. The *painters'* rules having been recently revised, no alteration was made in them. It is said that the building trade is so bad in Liverpool that workmen are offering themselves for less than the standard rate of wages.

A New Clock, the gift of Mrs. Clark, has just been placed in Stoke Fleming Church, near Dartmouth. It was manufactured by Mr. J. W. Benson, of Ludgate-hill. The bed or frame is so arranged that any part may be removed without disturbing the remainder. It shows time on a 5 ft. dial, but the movement is so made that at any future time it can be altered so as to show the time on two or four dials without difficulty; the wheels and bearings are of hard brass, the diameter of the main wheels being 14 in.: it chimes the quarters on two bells, and strikes the hours on a 16-cwt. tenor bell.

SURVEYORSHIP ITEMS.

Manchester.—At a meeting of the Manchester City Council, on Wednesday last, it was resolved, on the recommendation of the general purposes committee, that the salary of Mr. G. H. Moyes, improvement surveyor, should be increased to 250*l.*, and that of Mr. Henry Courtney, general surveyor, to 208*l.* per annum.

Denbigh.—For some time past the Denbigh Corporation and their surveyor have been in collision as to the latter's duties in connexion with the new drainage and Smithfield works, and the dispute was brought to a climax last week by the surveyor (Mr. R. Clough) being dismissed from office. The surveyor holds the plans, &c., which are now wanted for the contractor, and the former is ordered to give them up. The matter is likely to end in a lawsuit.

Chelsea.—At the last meeting of the Chelsea vestry, a letter was read from Mr. Stayton, the surveyor, asking the Board to vary the terms of his appointment, so that he should have liberty to undertake private practice. If the permission were granted, he undertook not to take any business which would in any way clash or be prejudicial to the interests of the vestry. Mr. Lawrence moved that the permission be granted, and pointed out that the privilege asked for was allowed to the surveyors of nineteen metropolitan parishes, and the principal officers of the Metropolitan Board. Mr. Cuthbertson seconded the motion, thinking the concession would be an advantage to the ratepayers, as it would prevent an increase of salary being asked for. After a discussion lasting more than three hours, the motion was lost by 30 votes to 14.

Miscellanea.

Wilton Hospital Competition, Salford. At a meeting of the Salford Town Council, on Wednesday, Mr. Alderman M'Kerrow moved,—"That the minutes of the proceedings of the general health committee, including a joint report by Mr. J. A. Bostock, C.B., deputy-surgeon-general and chairman of Stockwell and Fulham Hospital committees and Metropolitan Asylum Board; and Dr. F. de Chaumont, Professor of Hygiene, Army Medical School, Netley, on the competitive designs for the extension of the Wilton Hospital, and the report by the borough engineer upon the selected design, be entered upon the minutes; also that the recommendation of the committee, that, subject to the approval of the Local Government Board, the design marked 'Au Bon Droit' of Mr. Stephen Salter, London, be accepted; that the second premium of 50*l.* be awarded to the design marked 'M. D.' of Messrs. Pennington & Bridgen, Manchester; and the third premium of 25*l.* to the design marked 'August' by Mr. W. R. Corson, Manchester, be approved and adopted." Mr. Alderman Lee seconded the resolution. Mr. Mandley proposed as an amendment, "That the portion of the proceedings of the general health committee, recommending that the third premium be given to the design marked 'August,' be referred back to the committee." The amendment was rejected by 23 to 18, and the minutes of the committee were passed.

Fall of an Arch at Ryde.—By the falling in of an arch forming part of the sluice between Monkton Marshes and the Esplanade at Ryde, I.W., a man named John Langford was killed. The coroner's jury returned the following verdict:—

"That the said John Langford, on the 1st day of October, in the year aforesaid, at the parish aforesaid, in the Isle aforesaid, died from the effects of injuries then and there received by him from the accidental falling in of a certain arch, forming a sluice, which was then and there being constructed, and that such falling in was caused by the improper materials which had been used in making the same; and the jurors aforesaid, on their oaths aforesaid, do say that William Groves, the contractor engaged in constructing the said sluice, was guilty of gross negligence in using such materials, and that he did not use sufficient precaution before removing the centres; and the jurors also consider that great negligence was displayed by Francis Newman, the surveyor, and William Gregory, the clerk of works, in allowing improper materials to be used in the construction of the said arch.

The coroner censured the parties named in the verdict, and added that the jury were disputing for some time as to whether a verdict of manslaughter should not have been returned,—at least in the case of one or more of the persons named.

The Overcrowding of Theatres. — A meeting was held in Wandsworth Hall last week to consider the necessary steps to be taken for the better preservation of life and limb in the case of an alarm of fire in a theatre or music-hall. Mr. Thomas Grant presided, and there was a large attendance of the tradesmen and inhabitants of the neighbourhood. The Chairman, in opening the proceedings, said that the time had arrived when the safety of the public, more especially that portion which nightly crowded the pits and galleries of our theatres and music-halls, should be promptly and properly looked after by those in authority. It would be most unfair to pick out by name any one or more of the theatres where the evils were more than ordinarily safe, but he could not help saying that he knew of four large theatres in London where, in the event of a sudden panic, it would be impossible to save more than half a crowded audience in the event of a fire or a panic. The Chairman then moved the following resolution:—"That this meeting unanimously expresses its opinion that the Home Secretary, the Lord Chamberlain, and the district surveyors should at once take the necessary steps to ascertain officially the capacity of every place of amusement in the metropolis, with the means at hand for safely disposing of the audience in case of fire or other panic; that instant action should be taken to compel theatrical managers to provide fitting egress for their customers forthwith, and that looking at the near approach of the Christmas holidays, when the theatres will be overflowing with human beings for some three months, the least delay in the action, either of the authorities or the managers, may, and in all probability will, be fatal." The resolution was seconded and unanimously adopted, and the meeting closed with a vote of thanks to the chairman.

Builders' "Sand."—A correspondent of the *Times* says that for some days past carts have been engaged in the neighbourhood of Lewisham during the small hours of the night in carting so-called "builders' sand" from the low-level sewer at Deptford, and depositing it on a plot of ground at the north-west corner of the Breakspear and Harefield roads, on the Wickham Park Estate, and within 20 yards of inhabited dwellings. He complains of the extremely foul and unwholesome effluvia emitted from these deposits, and quotes the opinion of a medical man to the effect that they are highly prejudicial to the health of the inhabitants, and likely to induce fever. He appends a copy of a letter received by him from Dr. Pink, the medical officer of health to the Greenwich District Board of Works, who says,—"I have inspected the ground which formed the subject of complaint, and I have also consulted the solicitor to the Board on the matter, and we are of opinion that it does not fall under or come within the Nuisances Removal Act, which is the only Act on which proceedings can be taken."

Royal Hibernian Academy of Arts.—At the annual meeting of the Royal Hibernian Academy, held on the 18th ult., the following officers were elected for the year 1878-9, which elections have since received the approval of the Lord Lieutenant:—President, Mr. T. A. Jones; secretary, Mr. B. Colles Watkins; treasurer, Mr. Thomas Farrell; keeper and librarian, Mr. P. Vincent Duffy. Visitors, living model school, Messrs. P. Vincent Duffy, T. Farrell, Alfred Grey, and William Osborne; visitor, day painting school, Mr. A. Burke; professor of painting, Mr. A. Burke; professor of sculpture, Mr. J. R. Kirk; professor of architecture, Mr. J. J. McCarthy; professor of anatomy, Mr. W. Thornley Stoker, M.D.; professor of history, Mr. W. J. Fitzpatrick; professor of antiquities, Mr. J. T. Gilbert, LL.D. Trustees, Messrs. T. A. Jones, B. Colles Watkins, and Wm. Osborne; auditors, Messrs. A. J. Mayne and Thomas Drew; council in 1878-9, Messrs. James H. Owen, M.A., Augustus Burke, Thomas Drew, H. E. Doyle, P. V. Duffy, and T. N. Deane.

Egress from Places of Amusement.—The Birmingham watch committee have passed a resolution instructing the borough surveyor and an experienced engineer to examine the places of amusement in that town, as to the means of egress and of extinguishing fire.

Engineering Appointment.—Mr. Gibbons, who was assistant-engineer of the St. Ives Railway, has been appointed to succeed the late Mr. Gandy Cole as engineer of the new Moorswater Viaduct, St. Ives, Cornwall.

Headington-hill Hall, near Oxford.—It is only twenty-five years since old Headington-hill Hall was taken down and the present mansion built by the late Mr. James Morrell; but arrangements made a quarter of a century ago are now far from meeting the requirements of sanitary science. Recognising this, Mr. G. Herbert Morrell sought the advice of Professor Corfield, who condemned the old brick-drains and pipe-drains running under the house, the socketed lead and iron soil-pipes, the whole of the D-traps, and the want of ventilation to both sewers and closets. A new system throughout was accordingly planned by him, and the work has been done from drawings by and under the personal direction of Mr. Mark H. Judge.

The Sunday Society at Cheltenham.—A conference of members of the Sunday Society, and others favourable to the opening of museums on Sundays, was held during the Social Science Congress at Cheltenham; Mr. James Heywood, F.R.S., presiding. It was resolved,—"That this Conference, believing that the opening of museums, art-galleries, libraries, and gardens on Sundays will tend to foster the formation of such institutions where none now exist, heartily approves the objects of the Sunday Society, and rejoices in the progress made in Sunday reform during the past year, as proved by the recent opening on Sunday of the art-galleries in London, the museums at Maidstone, and the free public libraries at Manchester and Wigan."

The Colosseum Calamity, Liverpool.—The inquest on the bodies of the thirty-seven persons who lost their lives through the panic in the Colosseum Theatre or Music-hall, Liverpool, has terminated. The jury, after an hour's deliberation, returned the following verdict:—

"That the deceased persons were suffocated and crushed to death during a panic in the Colosseum Music-hall on the 11th inst., caused by false alarms of 'Fire' and of the 'Gallery falling.' The jury think, with the borough engineer, that the means of exit, as at present arranged, especially without the staircase leading to School-lane, are insufficient. They also think the principal cause of the numerous deaths arose from the barricade at the bottom of the gallery-stairs being fixed and the exit-door fastened. They would like to see the engineers' suggestions carried out. They also suggest that the services of a policeman, if required by the proprietors of places of amusement, should be granted, and that all such places should be under the control of the local authorities."

The Brickmaking Trade—Brickmaking in the district of which Sittingbourne and Faversham are the centres is now finished. It is estimated that upwards of 300,000,000 of bricks were made in the district during the past season, of which Messrs. Smeed, Dean, & Co., said to be the largest brickmakers in the kingdom, alone made over 60,000,000.

Liverpool Art Club.—This club has opened a competition for amateur painting on porcelain and pottery; not confined to members of the club, or residents of Liverpool, but open to all amateurs. Two prizes will be given,—a Venetian glass mirror, and a jar, probably of Hungarian manufacture.

TENDERS

For additions to premises in Mare-street, Hackney, for Messrs. Eley & Wilmer. Messrs. Lee & Smith, architects:—

Sargeant	£1,270 0 0
Forrest	1,237 0 0
Hayworth	1,225 0 0
Chapman	1,175 0 0
Stamp & Bowtle (accepted)	1,063 0 0

For painting two houses in Gower's-walk, Whitechapel, for Mr. John Wagener. Messrs. H. M. & W. Grellier, architects:—

Mansfield & Son	£630 0 0
Bull	545 0 0
Went & Perkins	535 0 0
Wyard	485 0 0

For the erection of two lock-up shops at Chesterfield, for Mr. Joseph Lowe. Messrs. Rollinson & Son, architects:—

Stott	£425 10 0
Heathcote & Son	382 0 0
Wright	351 15 0
Madin	350 10 0
Brailsford & Brown	350 0 0
Wright & Margerrison	329 10 0
Broomhead & Tomlinson (accepted)	322 4 0

Accepted for additions and alterations to the Hydropathic Establishment, Ashover, Derbyshire. Messrs. Rollinson & Son, architects:—

Hopkinson (excavator, mason, and waller)	£635 4 0
Mellor Bros. (carpenters, joiners, and painters)	442 0 0
Chadwick (slater and plasterer)	220 0 0
Dudley & Co. (plumbers, painters, and smiths)	217 0 0

For the erection of eight houses, fence walls, and conveniences, at Chesterfield, for Mr. George Smith. Messrs. Rollinson & Son, architects:—

Gough & Brailsford (accepted)	£1,880 0 0

For works at Sussex-place. Mr. Lewis Solomon, architect:—

Longmire & Burge	£525 0 0
Patman & Fotheringham	475 0 0

For works at Maddox-street. Mr. Lewis Solomon, architect:—

Sayer	£405 0 0
Cox	360 0 0
Davey	348 0 0

For sewers, gullies, &c., Oldfield estate, Holloway. Mr. Wm. Paice, surveyor:—
Killingback, accepted.

For rebuilding 165, Drury-lane, for Mr. J. Isaacs. Mr. Wm. Paice, architect:—
Snowball, accepted.

For erecting a new wing to, and various alterations at the Royal Arms Hotel, Silvertown, for Mr. Ball. Mr. E. Taylor, architect:—

Roddam (accepted)	£1,072 0 0

For the continuation of Goodrich-road, on the British Land Company's estate at Dulwich. Mr. Henry B. Michell, surveyor:—

Keeble	£1,066 0 0
Thompson & Son	1,047 0 0
Pizzey	985 12 0
Jackson	944 0 0
Harris (accepted)	894 0 0

For alterations at New-cross Station, for the London, Brighton, and South Coast Railway Company. Mr. R. Walker, architect. Quantities by Mr. Stonor:—
Sawyer, accepted.

For house at Putney, for Mr. Alton. Mr. Robert Walker, architect. Quantities by Mr. Stonor:—

Pain	£4,159 0 0
Adamson	4,155 0 0
Aviss	4,056 0 0
Hobson	4,049 0 0
Sawyer	3,990 0 0
Sewell & Son	3,978 0 0

For rebuilding No. 29, Queen-street, and No. 8, Great St. Thomas Apostle. Messrs. Tress & Innes, architects. Quantities by Mr. Henry Lovegrove. (Stone staircase and marble columns to windows extra):—

Fish	£5,500 0 0
Sewell & Son	5,184 0 0
Braid & Co.	5,134 0 0
Bangs & Co.	4,890 0 0
Conder	4,829 0 0
Ashby Bros.	4,745 0 0
Rider & Son	4,718 0 0
Brass	4,683 0 0
Browne & Robinson	4,550 0 0
Higgs & Hill	4,540 0 0

For new sewerage works, Cannock. (Four contracts.) Mr. C. R. Walker, engineer:—

Dodd	£19,500 0 0	
Moss	16,646 14 10	
Fawkes & Sons	15,137 11 6	
Meats Bros.	14,583 18 6	
Dawson & Bradney	13,857 19 3	
Walker	13,692 2 7	
Dovener & Quesnel	13,306 3 0	
J. & G. Tomlinson	12,831 14 9	
Hill Bros.	12,821 7 7	
Smith & Son	12,681 0 2	
Mason & Sons	11,993 3 5	
Clarke	11,944 15 2	
G. Bell	11,693 9 2	
Mackay	11,346 9 2	
Holmes & Franks	11,233 9 11	
Pickthall & Sons	11,132 9 1	
Currall & Lewis	11,093 17 10	
Drewitt & Pickering	10,819 3 1½	
Hughes & Dakin	9,009 0 3	*
Roberts	7,262 16 9	*
Young & Co.	7,030 4 0	†
J. Bell	6,559 0 7	‡
Lea	5,894 5 8	‖
White	2,518 6 10	§

* Except Contract No. 1.
† For Contracts Nos. 2 and 3.
‡ For Contracts Nos. 2 and 4.
‖ For Contracts Nos. 1 and 2.
§ For Contract No. 2 only.

For boundary walls, gates, and gardener's cottage, at Cudham, Kent. Messrs. Tress & Innes, architects:—

Arnaud	£1,685 0 0
Dartnell	1,655 0 0
Payne & Balding	1,644 0 0

For house and farm-buildings, &c., for Col. Frazer-Fagate, near Horsham, Sussex:—

Burton	£3,250 0 0 !
Snewin	2,800 0 0
Longley	2,400 0 0
Smart	2,300 0 0
Charlswood Bros.	2,273 0 0
Groome	1,893 0 0
Redford (accepted)	1,725 15 0 !

For new class-room and mistress's residence, &c., to Kensington schools, Church-court, Kensington. Mr. Gordon M. Hills, architect. Quantities supplied:—

Langdale & Gwynne	£2,185 0 0
Hockley (too late)	1,980 0 0
Jarvis	1,815 0 0
Dove Bros.	1,745 0 0
Manley	1,704 0 0
Cox	1,686 0 0
Hobson	1,673 0 0
Knight	1,592 7 0

For the erection of Cottage Hospital, Norfolk Park, Maidenhead. Messrs. Henry Cooper & Sons, architects:—

	Central Block.	Central Block and East Wing.	Central Block and E. and W. Wings.
Taylor	£1,193	£1,572	£1,950
Keefe	1,170	1,559	1,949
Hobern	1,100	1,475	1,800
Kempsall	1,088	1,476	1,864
Cox	1,059	1,429	1,799
Selby	1,050	1,423	1,796
Langmead & Way	1,047	1,425	1,798
Lovell	1,040	1,390	1,740
West Bros.	1,040	1,380	1,720
Sim	1,019	1,367	1,715
Woodbridge	1,000	1,350	1,700
Reavell	996	1,369	1,744
Stevens & Bastow	986	1,330	1,675
Jones & Co.	957	1,290	1,630
Bebbington	945	1,279	1,613

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